THE EFFECT OF BASEL II ON SME FINANCING IN GERMANY

AN EXPLORATORY STUDY OF THE IMPACT OF THE NEW BASEL ACCORD ON SMES AND FINANCIERS IN GERMANY

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Abstract

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The New Capital Accord (henceforth, Basel II), is expected to impose dramatic changes on banks and other providers of corporate financing, as well as companies. Literature indicates that small and medium sized enterprises (henceforth SMEs), in general, and in particular German SMEs seem to be affected: Germany has the highest SME density with SMEs comprising 99.6% of all corporations (IMF, 2008), these SMEs are highly dependent on banks for financing (see Jacobson *et al*, 2006). However, there is huge controversy in the literature concerning how these changes will look, right before Basel II came into effect in the years 2007 / 2008 in the European Union. In order to explore this effect from a Post-Basel II perspective, the objective of this research project is to establish what effect Basel II will have on corporate financing of SMEs in Germany.

The high impact on SMEs (in Germany), combined with controversial evidence from extant Pre-Basel II research, indicates a high relevance to academics and practitioners for this thesis. This thesis is probably the first from a Post-Basel II perspective which covers both – the SMEs' as well as the financiers' perspective.

Based on a structured literature review using the comparative method (Peters, 1998) 'Most Different Systems' evidence is provided that there is no consistent picture regarding the effect of Basel II. Therefore, further research is needed to determine whether the effect in Germany is consistent, from a Post-Basel II perspective, with regards to the conditions which trigger certain mechanisms, from a 'scientific realism' (Smith, 1998) perspective, because the literature indicates that 'positivist generalising' has limited validity.

Building on Creswell (2003), an 'exploratory sequential' design was created to test three initial hypotheses (as confirmation or refutation of a theory, see

Gujarati, 2003:8): a multi-method design is best suited to the author's philosophical stance of 'scientific realism' by means of triangulation (Robson, 2002:174). The result of the initial quantitative phase is based on the analysis of questionnaire data from 125 SMEs and financiers (banks, private equity companies, family offices, providers of alternative means of financing) derived from a probabilistic sample frame in the fourth quarter of 2008. Mathematical models for SMEs and financiers regarding the three initial hypotheses were set-up and tested using the appropriate statistical tests. In order to limit bias by means of a spill-over effect from the financial crises, control questions were used. The subsequent qualitative phase by means of semi-structured elite interviews (Saunders *et al*, 2007:312) between March and May 2009 enabled a valid triangulation and provided in-depth insights into how SMEs can cope best with Basel II. The purposive sample, of 17 'important cases', included company owners and top-level financier executives.

In a conclusive quantitative and qualitative synopsis, the three initial hypotheses were acknowledged. However, the qualitative in-depth analysis by means of 'causal networks' (Miles and Huberman, 1994) led to an amendment of the hypotheses as follows:

1. Corporate finance has become different for SMEs because the 'house bank principle' has changed to a 'core bank principle' due to Basel II. Shopping around regarding credits will be more difficult which makes financing more difficult. This could be overcompensated by major SMEs, by using non-credit corporate financing which leads to a reduction of the 'house bank' principle.
2. SMEs can cope best with the effect when they:
   a) proactively engage in rating and improve the parameters, or
   b) they adjust their strategy as stated in hypothesis 3.
3. Financiers (especially non-bank financiers) will engage in SME corporate finance when they have a sound financial basis / management and when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

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1 INTRODUCTION

The objective of this research project is to establish what effect the recent New Capital Accord regulation by the Basel Committee on Banking Supervision (henceforth BCBS), will have on corporate financing of small and medium sized enterprises (henceforth SMEs) in Germany. The New Capital Accord directive (henceforth 'Basel II' or 'New Accord', in line with Hall, 2006) was initiated in 1996 (BCBS, 1996) by the G10 countries trying to unify the basis on which loans were granted. It gained momentum from 1997 (Wahlström, 2009) and 2001 onwards (BCBS, 2001a), after the 'Asian Financial Crisis' and the stock market crash. The regulation is expected to impose dramatic changes on banks and other providers of corporate financing and companies alike.

Years before Basel II became a European Union directive in 2006 (European Commission, 2006), Altman (2001:1) stated: '*These guidelines could have an enormous impact on the safety, performance and competitive environment of both bank and non-bank financial institutions on a global basis*.'

Finally, Basel II was signed by 13 countries of the EU, US, Japan and Switzerland and is a worldwide de-facto standard, yet not legally binding. In contrast the Capital Requirements Directive (henceforth CRD), which was derived from the New Basel II Accord, is legally binding in the 27 member states of the European Union. According to Mercieca *et al* (2007:1977) Basel II is '*placing more competitive pressure upon banks*'.

In terms of corporations the effect on SMEs is decisive, particularly within Europe, and especially so in Germany. Several authors regard SMEs as the backbone of the European (Saurina and Trucharte, 2004, for example) and the German economy (see Bräunig and Lob, 2007, for example. Germany has the highest SME density with SMEs comprising 99.6% (IMF, 2008) of all corporations with a high dependence on bank credits (see Jacobson *et al*, 2006, for example). In 2001, the early defining phase of Basel II, Germany

was the second largest banking economy after the United States (Grunert and Weber, 2009) and continues to be a 'typical example of a bank-based economy'. As a consequence German SMEs seem to be most affected by the original drafts of the New Accord. It is therefore not surprising that the improvements made on Basel II regulations in favour of SMEs were due to successful lobby work from German authorities and the government, as well as the Deutsche Bank, the biggest German Bank, according to their CEO (Ackermann, 2003).

However, there are diverging opinions regarding how these changes will look, even after the third Consultative Paper (BCBS, 2003), which brought some relief to SMEs.

1.1 CLOSING THE RESEARCH GAP: RESEARCH QUESTIONS AND HYPOTHESES TESTED

The high impact on SMEs (in Germany), combined with controversial evidence from extant Pre-Basel II research on what the impact of Basel II would be, indicates a high relevance to academics and practitioners (see sections 1.2 and 1.3) for this thesis, as it is one of the first from a Post-Basel II perspective. Based on the research objective stated above, the research question has to consider the effect of Basel II regulation on the financing of SMEs in Germany and how SMEs can cope with the effect.

The author's contribution to knowledge in closing this research gap will be threefold: it will add to this debate from a Post-Basel II rather than a Pre-Basel II perspective; in contrast to the majority of research papers under review the SMEs', as well as the financiers', perspectives are taken into account; finally, evidence is provided regarding how SMEs can cope best with the situation.

Based on Creswell (2003), an 'exploratory sequential' design, by means of a multi-method approach, is used as Basel II came into effect during the writing

of the thesis in Germany and such a design was suited best to the author's philosophical stance of 'scientific realism' (Smith, 1998). Scientific realism is explained in detail in section 4.1.

Based on intense background gathering and literature research (see section 3) the following three initial hypotheses were formulated and tested by means of quantitative analysis (see section 4). The three initial hypotheses were:

1. Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.
2. SMEs can cope best with the effect when they:
   a) proactively engage in rating and improve the parameters, or
   b) they adjust their strategy as stated in hypothesis 3.
3. Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

By means of a consecutive qualitative phase (see section 6) the findings were triangulated which led to amended hypotheses in the final synopsis section (see section 7): this means, in terms of the first hypothesis, strong evidence that banking is moving from a 'house bank principle' towards a 'core bank principle'. Regarding hypothesis 3 a further focus on financial management / stability was added as an additional requirement.

1.2 RELEVANCE TO ACADEMIA

As indicated above, there are diverging opinions on how these changes will look. Authors like Altman and Sabato (2005) estimate that SMEs will have lower capital cost due the 'pooling' effects of Basel II. Dietsch and Petey (2004) argue that SMEs show a higher risk profile and will therefore experience higher capital cost.

Regarding the prediction of the Basel II effect as a continuum, in terms of 'ease of getting an SME loan', these two authors are at the opposite sides of the continuum with others in between (see Figure 1): Golland and Gehlhaar (2002), for example, argue that financing will neither become cheaper / easier, nor more expensive / difficult – it will just move away from mere credit financing.

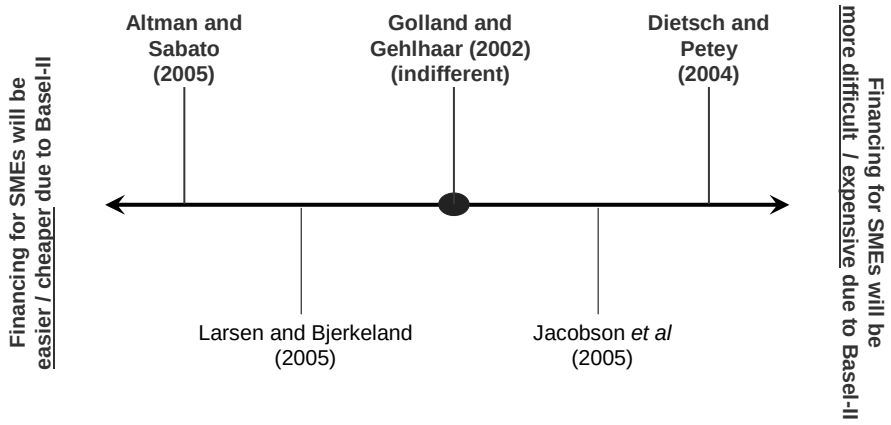


Figure 1 Basel II predictions regarding Basel II impact

These contrary findings are remarkable as the regulation of Basel II was set-up to unify the application of loans and to ensure a better consistency in market behaviour, as the chairman of the Committee of European Banking Supervision (henceforth CEBS) points out (Roldán, 2006). This is even more staggering as nearly all authors generalise their findings in a positivistic way (Greasley, 2004). One of the explanations could be found in evaluating the underlying philosophical position of the authors in financial research: Saunders *et al* (2007) points out that research philosophy determines the research design.

Whereas other social sciences moved towards realism in the 1970s (Bhaskar 1975), authors like Ardalan (2003) state that the vast majority of finance research is based on positivism: the search for positivist truth still prevails in financial research and therefore this narrow scope has to be widened, for example, by applying a (scientific) realist approach. Wahlström (2009), for

example, criticises the mere statistical research approach on Basel II. This is in line with other corporate finance research, according to Aziz and Humayon (2006), who evaluated 180 surveys. As pointed out by Schmid (2007) several research studies, like the ones mentioned in VanHoose (2007), have a certain or even high internal validity (Girden, 2001:4-5). The problems arise when these authors, who use for example, a one-factor empirical approach, generalise their findings, beyond the given scope which can harm external validity (Robson, 2002:107). Therefore, the author will use a special sequential research design (see section 4.2) from a scientific realist stance (Sayer, 2000) in order to overcome these limitations by means of triangulation (Robson, 2002:174) as will be explained in section 4.1.

1.3 RELEVANCE TO PRACTITIONERS

According to Scholtens (2000), there are three determinants of the financial architecture: financial markets, financial institutions and financial regulation. Basel II has an effect on all three determinants: 7,000 European banks are affected (Barfield, 2004a) who have to spend up to 150 million euros each, especially in IT, in order to cope with the regulation. On the other hand it is predicted, in the research for the European Council of Ministers, that bank capital could be reduced by up to 100 billion euros with Basel II. This issue of reducing capital has to be seen in the light of regulator objectives. According to Koziol and Lawrenz (2009), assessing the risk of bank failures is the paramount concern of banking regulation. Viale *et al* (2009) argue that the recently adopted Basel II standards increasingly emphasize the use of market discipline as a major regulatory device.

In a German context, the dominating financial institutes are banks (Scholtens, 200). Kreditanstalt für Wiederaufbau (henceforth KfW), the German state-owned SME bank, regards Basel II as a ‘catalyst’ (Reize,

2007:86) for a risk-adjusted granting of credit. Josef Ackermann (2003:79), CEO of Deutsche Bank, the biggest German bank, states that the 'preparation for Basel II is one of the four key tasks for German banks to react to global development on the financial markets with its far reaching impacts'.

Germany has a three pillars banking system consisting of commercial banks (357 in 2005), savings banks ('Sparkassen', 463 in 2005) and cooperative banks (1,293 in 2005, Engel and Middendorf, 2010). According to Engel and Middendorf (2009), both pillars (savings banks and state banks, so-called 'Landesbanken') have an explicit mandate to promote SMEs. They have been the prime source of SME lending (Sachverständigenrat, 2005) as these banks belong to state or local authorities and act as a 'virtual extension' of regional politicians to foster regional development and labour. These state guarantees (so-called 'Anstaltslast' and 'Gewährträgerhaftung') '*supported a good refinancing'* according to Schauerte (2006:13), the German State Secretary for Mittelstand affairs.

This changed dramatically when the guarantees of the state-owned Landesbanken or Sparkassen were removed. This happened in 2005 after the German government adjusted the legislation in the year 2002, following an agreement from July 2002 (Monti, 2003) as a reaction to complaints from the European Commission concerning unfair competition. On the verge of this foreseeable decision, credits rates have risen by 12.5% since 2003, according to Kerle's (2006) research. However, there are academic studies which do not come to this conclusion. Based on empirical research on a large data set of German banks, Engel and Middendorf (2010) did not see any significant difference in financing constraints, or a disproportionately high attraction of 'more financially constrained' firms to savings banks.
Therefore, Basel II, with its more 'mechanistic approach' (see quote from an interviewed SME in the author's empirical qualitative research), in relation to

'politically influenced lending' of the past (see above), will have a dramatic effect on German companies in general and German SMEs in particular, as bank loans are the prime sources of SME financing (see Jacobson *et al*, 2006, Reize, 2007 or Russell-Walling, 2007, for example).

SMEs are the backbone of the European and especially the German economy. In the time of the formulation of a unified SME definition (European Commission, 2003a), approximately 23 million SMEs represented 99% of the EU-25 corporations. The importance of SMEs in Germany can be assessed by the fact that a special noun exists for SMEs, the so-called 'Mittelstand'. Using the most common definition (IfM, 2008) 'Mittelstand' comprise SMEs according to the EU definition (European Commission, 2003b), plus slightly bigger companies up to a total of 500 employees.

Therefore, the majority of banks (and SMEs) are affected as Germany's banking landscape is highly fragmented (Lahusen, 2004) and smaller institutes normally have SMEs as clients due to their privileged relationship lending situation (Berger, 2004). According to Kirschenmann and Norden (2007:31) '*small business lending is an especially interesting case because … relationship lending is more common than in case of lending to large firms*.'

As a consequence CFOs (SFS, 2003) regard Basel II, with its increased disclosure requirements towards banks, to be the second biggest issue in Germany after changes in corporate taxation: according to De Jong *et al* (2008), Germany has one of the highest corporation taxes. On the verge of Basel II credit demand outpaced supply by SMEs by 142% (Reize, 2007).
However, KfW-negotiator in the Basel II committee, Lob, states that the SME-package will provide SMEs with 'a not unsubstantial advantage' (Bräunig and Lob, 2007). On the other hand, authors like Golland and Gehlhaar (2002) or Sandvoß (2007) argue – with reference to Basel II – that in Germany the famous 'Hausbank-Prinzip' (Kirschenmann and Norden, 2007) is eroding.

The house bank principle means that an SME will exclusively carry out nearly all financing activities with one institute, often for decades. In literature outside Germany this is often referred to as 'relationship lending' (see Altman and Sabato, 2005, for example). The high leverage of German SMEs is linked to the low equity ratio of SMEs which comprises 7.5% (Deutsche Bundesbank, 2003:41). This is significantly lower compared to other European countries (Irsch, 2003). Even worse, in times of the current crisis, Stoltz and Wedow (2005) provide evidence based on Pre-Basel II data that capital buffers fluctuate cyclically with business cycles – with a stronger fluctuation in terms of savings banks than for cooperative banks. Fedorenko *et al* (2007:16) point out that the length of credit is now nearly exclusively determined by rating rather than the duration of the business relation: *'In the wake of Basel II it seems as if German house-banks reorient their business model towards the more arms-length lending policy of US-banks*.'

As a consequence, major SMEs in particular are seeking alternatives to bank credits, such as private equity, stock market and other forms of alternative funds, like mezzanine, leasing, factoring and Asset Based Securities (henceforth ABS), as Beck and Demirgüç-Kunt (2006), Hofmann *et al* (2007), Lehmann *et al* (2004), Schäfer *et al* (2007), SFS (2003) or Schmit (2004), point out. However, banks try to adjust to the situation: on the one hand, they cut back the 'Hausbank' (house bank) principle. On the other hand they try to stay the dominant financing partner of the German SMEs.

Research in the years 2008 and 2009 (including this thesis) indicate that the sustainable effect of Basel II is a major issue, even compared to the recent (and hopefully shorter-term) subprime crisis, although Hall (2008:19), for example, reflects on the Northern Rock case as *'the first fully-blown nation-wide deposit run on a UK bank for 140 years.'* The German Ifo Institut (Abberger, 2009) reported in August 2008, in their monthly economic activity report, that the business climate increased for the second time in a row and that the increase is 'carried by many sectors'.

Based on a company survey in Germany amongst 25 associations and KfW, Plankensteiner and Zimmermann (2008) pointed out that the credit trend on the verge of Basel II is differentiated: whereas only 11.0% of major corporations stated that getting credit became more difficult, 13.8% to 37.4% of the SMEs actually found it so. Abberger and Kunkel (2008) confirm these findings. This is contrary to a survey amongst 113 banks by the European Central Bank (ECB, 2008) stating that net tightening of credit increased more for larger corporations rather than for SMEs. As no consistent picture emerges there is a need for more in-depth research.

The relevance of the author's research is underlined by the fact that several leading financial news services (VC-facts, 32/2009 and M&A News, 32/2009) and SME decision maker magazines (Going Public Media 'Entrepreneur Magazine' IV/2009 and Markt & Mittelstand 7/8 2009, see section 4) published articles from the author, published interviews with the author or wrote articles based on the author's findings.

The issues mentioned earlier are not only relevant to the audience stated above but to the author's business as well. The author is founder and manager of a corporate finance consultancy dedicated to SME financing. Prior to that he was General Manager and Member of the Board of several national and international consulting and training companies, as well as Director of an Accenture Company, regarding Germany, Austria and Switzerland. In doing so he managed over 20 SME corporate finance transactions – as manager, consultant or entrepreneur. He is a member of the Bavarian Journalist Association and Member of the Jury of the biggest German Business Plan competition which fosters entrepreneurship.

Therefore, this professional expertise and network contributes to the thesis, for example, by getting access to top-level interviewees, such as the fund manager of an industrial family with a fortune of several billion euros, which would have been otherwise hardly feasible as these kinds of managers do not normally participate in research.

1.4 CONTRIBUTION TO PRACTICE AND TO KNOWLEDGE

Academics and practitioners came up with a variety of models and empirical studies at different stages of the Basel II discussion.

However, some of the research studies seem at least partly outdated due to the on going changes in Basel II regulation, such as Acharya (2003), Buch (2003), Cowley (2002), Carey *et al* (1998), Garside and Bech (2003), Golland and Gehlhaar (2002), and Hudson (2003). Some research studies focus too narrowly, for example, on a special sector, like Hartl (2002), BWI (2002), Partsch and Wlaschitz (2002) or Schwaiger (2002).
The majority of research focuses either primarily on the effect on financiers, like Altman and Sabato (2005), Berger (2004), Cumming and Johan (2007), Dietsch and Petey (2004), Jacobsen *et al* (2006) or Nitschke and Kuper (2007). Or, they address primarily the effect on corporations, such as Aziz and Humayon (2006), Diller *et al* (2005), Ehrhart and Zimmermann (2007), Heid (2007), Kopecky and VanHoose (2006), Larsen and Bjerkeland (2005) or Schäfer *et al* (2007).

According to the author, there has been no comprehensive study so far, after Basel II came into effect during 2007 and 2008, which covers both the effect on financiers, as well as the effect on SMEs in Germany, regarding SME financing. Furthermore, there is huge controversy on how the effects of Basel II will develop – in general and especially with respect to SMEs. The thesis will, therefore, contribute to practice in order to close the research gap in two ways. First, by evaluating the effect of Basel II in line with the main focus of pre-Basel II research and second by providing guidelines on how SMEs can cope best with the changes imposed.

Based on a comprehensive literature review the author's empirical research aims to establish the effect on financiers and SMEs from an initial Post-Basel

II perspective, with further insights into how SMEs can cope best with the changes imposed by Basel II. Therefore, it is evaluated whether certain patterns in the research designs exist (especially Basel II factors under research) which lead to certain outcomes. Research designs and research outcomes are set into relation in order to decide which research design is best suited for closing the research gap from a scientific realism stance.

Secondly, using the findings from this 'clustering', the author will come up with a model for a research design which tries to avoid the limitations of the predominant positivist approach. Based on the author's scientific realism stance a 'sequential mixed method', aligned to Creswell's (2003) approach, is used as a means of 'triangulation'. The concept of triangulation and mixed-method design is explained in depth in section 4.1 and 4.2.2 with regard to the related concept of 'falsifiability' (Popper, 2002:345). Applying theoretical and methodological rigour, as well as higher practical relevance, the author's thesis approach aligns with 'pragmatic science' in the 'typology of research' by Hodgkinson *et al* (2001) (see Figure 2).

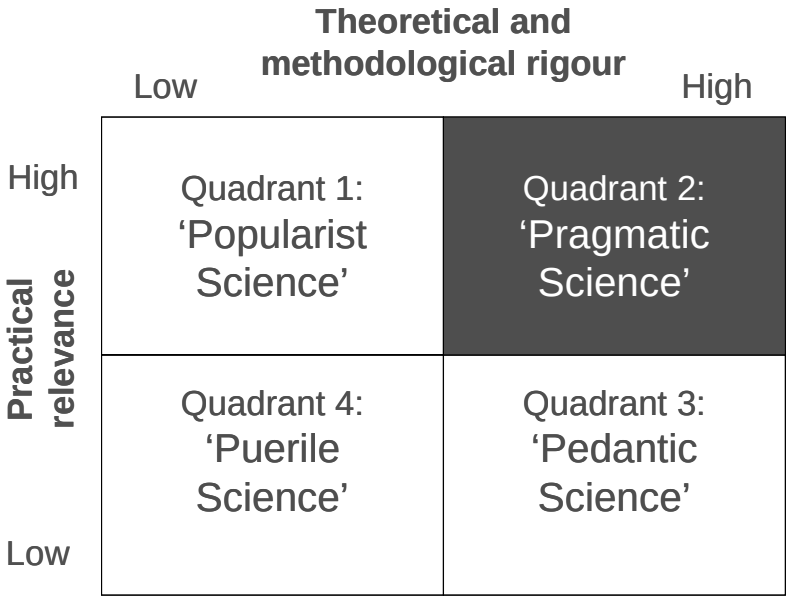


Figure 2 'Typology of Research' (Hodgkinson *et al*, 2001)

1.5 SCOPE OF RESEARCH

In terms of research unit SMEs, the classification of the European Commission (European Commission, 2003b) is used, as it builds the basis for the CRD. As in Germany an SME is established which comprises some major companies as well (2.5.1); for reasons of comparison a representative of this major 'Mittelstand' is included in the qualitative part of the research.

As stated already, Sandvoß (2007) argues that the financing sector underwent a major change due to Basel II with banks becoming 'facilitators' of various financing options. The research unit regarding financiers is segmented in line with Beck and Demirgüç-Kunt (2006), Hartl (2002), Lehmann *et al* (2004), Schäfer *et al* (2007), SFS (2003), and Schmit (2004), into banks and non-bank financiers, such as private equity, mezzanine, leasing, factoring and ABS. Banks and non-bank financiers are henceforth referred to as financiers.

As the aim of a DBA (in contrast to a PhD) is to appeal to an academic audience as well as a practitioners' audience, research from the academic side, as well as from the practitioners' side is embraced in the literature review. Especially regarding practitioners' research, special care has been taking how to cope with bias. In addition, the soundness regarding research standards in terms of internal and external validity (Saunders *et al*, 137) is evaluated in more depth in section 3. However, leaving out practitioners' research in an empirical DBA context would harm the validity of the author's DBA research as a means of triangulation from the author's scientific realism perspective (Smith, 1998).

1.6 STRUCTURE OF THE THESIS

In line with suggestions by Saunders *et al* (2007:526-531) the thesis is organized as follows:

Section 2 provides an overview of Basel II. Starting with a critique of the former Basel Accord from 1988 (BCBS, 1988) this section presents the so-called three pillars of the New Basel Accord with a special focus on SME related issues. An overview of the worldwide application and a review of critique regarding the New Accord are provided. The section closes with a comprehensive overview of corporate financing in Germany with regards to supply and demand issues as well as information infrastructure.

The literature review will be in line with suggestions by Saunders *et al* (2007:61), starting from a more general level to elements where new aspects are added by this thesis. Therefore, the general literature review, which was touched upon in the introduction, becomes more elaborated upon in section 2 regarding a critical review of Basel II. In section 3 the (primarily) Pre-Basel II state of research on the (expected) Basel II effect on SMEs is reviewed, primarily using Pre-Basel II research, as Basel II was active partly since 2007 and fully since 2008 in Europe, with certain transition periods. As the literature review builds a foundation for the research design, frequent references to the research objective / question as well as to the three research hypotheses are made, as these are evaluated and tested within the empirical quantitative and qualitative sections 5 and 6.
A special comparative method (*Most Different Systems*) is used for structuring and describing the findings of the author's literature research covering EU-25 countries as well as the US, Australia and parts of Asia, as these are drivers behind the New Accord. The literature research provides evidence that no consistent picture regarding the effect on Basel II exists from a holistic, positivist viewpoint: neither regarding the discriminating factor 'country', nor regarding cross-country discriminating factors like 'financial markets-based economies vs. banking-based economies'.

Based on the literature review the research design is explained in the method chapter in section 4. A sequential mixed-method design is applied as this

triangulation approach is suited best to the philosophical position of scientific realism and helps to validate context-sensitive findings in relation to the diverging Basel II research. The central concepts of scientific realism, semi-structured interviews in the qualitative phase and triangulation are explained and justified in depth within this chapter. The research approach, strategy, choices and data collection and analysis techniques derive from the research purpose and objective stated above are introduced in relation to the findings from the literature review.

In section 5, the results of the quantitative analysis are provided; these relate to the self-administered questionnaires sent to SMEs and financiers. Mathematical models were set up regarding the three hypotheses from an SME's, as well as from a financier's, perspective. These models were tested using the appropriate statistical tests.

Likewise, section 6 provides the findings of the subsequent qualitative analysis based on 'causal networks' (Miles and Huberman, 1994) related to the semi-structured elite interviews.

Section 7 concludes by means of a triangulation synopsis of the findings of the mixed-method design.

2 BASEL II

The 'New Capital Accord' was established to overcome the limitations of Basel I which goes back to 1988 (BCBS, 1988): the New Capital Accord by the Basel Committee on Banking Supervision (henceforth Basel Committee' or 'BCBS') tries to address a better and more risk sensitive allocation of capital as a central goal. Basel II (BCBS 2004) was initiated in 1996 (BCBS, 1996) by the G10 countries trying to unify the basis on which loans are granted.

The Basel Committee on Banking Supervision was established in 1974 as a reaction to a crisis, namely the default of Bankhaus Herstatt, a relatively small German private Bank (BCBS, 2009a). The intention of the Basel Committee with the New Capital Accord was to limit the so called 'regulatory arbitrage' (BCBS, 1999) as a reaction to the Asian Financial Crises (Wahlström, 2009). Regulatory capital (henceforth RC, bank capital enforced by regulator, see BCBS, 2004) was to become close to economic capital (henceforth EC, bank capital allocated by a bank via internal management decision, Scott, 2002). Therefore the capital allocation became more risk sensitive compared to Basel I. For example, market risk was developed in more depth (BCBS, 2004).

Credit risk and operational risk are quantified in a sophisticated manner. This is in contrast to the broad brush credit risk approach of Basel I which caused 'adverse selection' to a much greater extent. According to Leary and Roberts (2005), adverse selection (a company has a better credit quality than assessed and vice versa, Jankowitsch *et al*, 2007) is an important determinant in financing decisions. This relates to the second part of the research objective: how can SMEs cope best with the effect of the new and much more sophisticated Basel II regime?

Starting with a short recollection of Basel I, the Basel II history and the three pillars of Basel II are explained in general, as well as in relation to SMEs, the

international application and selected critics. The section closes with considerations of supply and demand issues and an overview of corporate financing in Germany on the verge of the Basel II inception in 2007 / 2008.

2.1 BASEL I VINTAGE

In order to understand the implications of Basel II, a brief outline of Basel I is presented, as criticism from practitioners led to the development of Basel II starting with the amendment of 1996 (Lamy, 2006).

Basel I was initiated by the G10 bank supervisors (Belgium, Canada, France, Germany, Italy, Japan, Netherlands, Sweden, Switzerland, United Kingdom, United States), and Luxembourg and was agreed in July 1988 (Hall, 2006). Therefore under the 1988 Accord banks had to hold capital of at least 8% of their Risk Weighted Assets (henceforth RWA, see BCBS, 1988) as RC. Nordal (2009) states: '*The aim of this RC is to provide a cushion that can absorb large and sudden deficits in the bank's earnings and thereby avoid a bank failure'*. The risk weights range from a factor of 0% for accounts receivables of OECD banks and 100% for bank loans. Basel I was implemented by banks internationally from 1993 onwards (Hall, 2006).

This 'one-fits-all' approach was criticised, for example, by von Thadden (2004) because all risks are treated alike, despite more and more advanced risk management methods.

2.2 BASEL II HISTORY

In order to overcome the limitations of Basel I the first ideas on a 'New Accord' were published in June 1999 (BCBS, 1999) by means of a first Consultative Paper ('A New Capital Adequacy Framework'). The aim of Basel II was to *'develop a framework that would further strengthen the soundness and stability of the international banking system' and to ensure 'more risk*

sensitive capital requirements' (BCBS, 2004). Furthermore, it intended to foster a fair, competitive environment, to provide a framework applicable to non-international banks (see hypotheses 2.b and 3), and to ensure, in general, the Basel I regulatory capital basis, yet provide an incentive-compatible regulatory capital regulation (Suyter, 2008).

It contained the outline of the so-called 'three pillars' which are explained below. Based on further discussions by the affected parties a second Consultative Paper was published in January 2001 (BCBS, 2001a). Following studies within the banking industry (von Thadden, 2004) a third Consultative Paper (BCBS, 2003) was issued in April 2003 (Hall, 2006). This paper was further refined (Lamy, 2006) by including the results of the third Quantitative Impact Study (henceforth QIS, see BCBS, 2003) from May 2003, as well as comments from banks and the March 2004 modifications (Lamy, 2006).

These studies led to the final version of Basel II published under the title "International convergence of capital measurement and capital standards" in June 2004 (BCBS, 2004). In total four quantitative impact studies (henceforth QIS) were conducted in 2001 (QIS1, see Quaglia, 2008), 2002 (QIS2, see BCBS, 2001c), 2004 (QIS3, see BCBS, 2002) and 2005 (QIS5) 'concerning the implementation of the new rules and such assessments in aggregate terms … that is, they were not country or sector specific' (Quaglia 2008). As countries, such as Germany, were not satisfied with the findings they conducted their own 'national impact studies' (QIS4, see BCBS, 2005a) – German authorities were especially concerned about the 'Mittelstand'-impact. The fear was that SMEs might suffer due to the cyclical effect and lack of external rating (see hypothesis 2.a) as the German Banking Association (BdB, 2003) points out, and Germany regarded this to be a competitive disadvantage (Lütz, 2004).

Fostered by the CEBS (Bauer, 2004) the final version became a European Directive in June 2006 (CRD, European Commission, 2006). Yet, there are some differences between Basel II and CRD (Quaglia, 2008), for example, on intra-group exposure which became important regarding Germany's connected savings and cooperative banks (which serve as the primary 'house banks' according to Quaglia, 2008, see hypothesis 1): Basel II only applies to banks, whereas CRD applies to investment firms too (Quaglia, 2008). This relates to the focus of Basel II on non-bank financiers, as stated in hypotheses 2.b and 3.

Figure 3 provides an overview of the Basel II from the official documentation (BCBS, 2004:6)

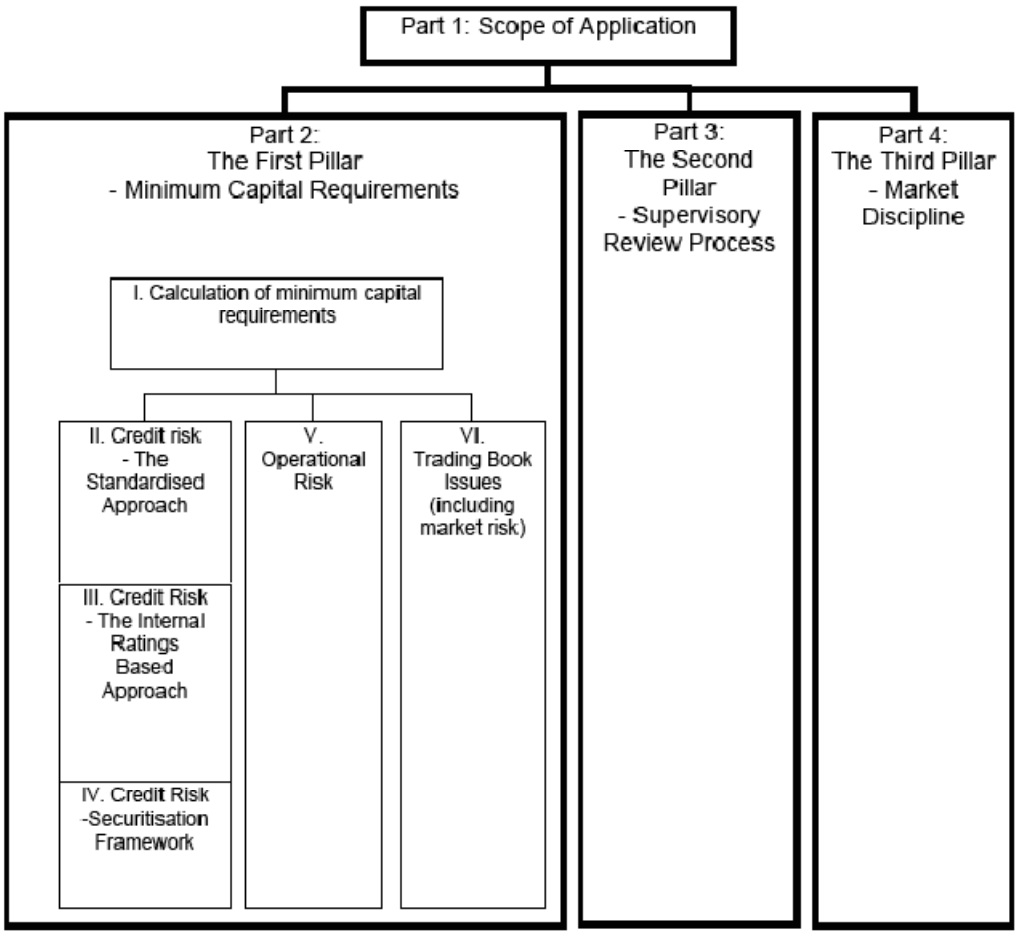


Figure 3 Overview Basel II (BCBS, 2004:6)

2.3 BASEL II - PILLAR 1 (MINIMUM CAPITAL REQUIREMENTS)

Basel II can primarily be regarded as a reaction to criticism on 'credit arbitrage' (BCBS, 1999). Therefore the issues summarised under Pillar 1 are at the core focus of research conducted on Basel II. Whereas in Basel I the regulatory capital was flat at 8% (BCBS, 1988), banks can choose between various approaches (Lamy, 2006) to determine RC within Basel II. Besides credit risk, Pillar 1 deals with operational risk and market risk as well. These factors account for approximately 1% in Germany (see Figure 4), according to empirical calculations by Schwaiger (2008).

RC = SC x (RWA from credit risk + amount accounted to market risk and operational risk x 12.5)

with

SC = 8% (= Solvability Coefficient)

RWA = Risk Weighted Asset (from credit risk as explained below)

Figure 4 Basel II Regulatory Capital scheme

2.3.1 Credit Risk

The evaluation scheme regarding regulatory capital stays, in principle, unchanged (Suyter, 2008). Regulatory capital is calculated by multiplying the weighted total exposure (the exposure of default multiplied by the risk weight) with the solvency coefficient (unchanged at 8%) incorporating regulatory capital for operational and market risk as well.

According to van Thadden (2004), one of the essential elements of the third Consultative Paper in April 2003 was that banks in two of the three credit risk approaches would have to conduct ratings on their own – this was a big change (see hypothesis 2.a). The bank internal rating imposes a much higher responsibility according to Agarwal and Taffler (2008:1541) '*because a poor*

credit risk model could lead to sub-optimal capital allocation.' They believe that accounting based models are superior to market based models based on an extensive set of UK data. Jankowitsch *et al* (2007:181) estimated that '*improving a rating system with low accuracy to medium accuracy can increase the annual rate of return on a portfolio by 30 to 40 bp*'. According to the 2004 Basel Accord (Krink *et al*, 2008:2275), a rating system *'comprises all of the methods, processes, controls, and data collection and IT systems that support the assessment of credit risk, the assignment of internal risk ratings, and the quantification of default and loss estimates'.*

From a practitioner's point of view, Hromadka (2008) regards this as a great leap forward. However, Suyter doubted the 'incentive part', especially regarding SMEs (see below). Finally, the April 2004 modifications (Hall, 2006) include the fact that expected losses are covered by special provisions, whereas the capital requirement addresses only unexpected losses (henceforth UL-only, see Lamy, 2006).

Banks can chose amongst the so-called Standardised Approach (henceforth SA, see Saurina and Trucharte, 2004) and the two so-called Internal Rating Based approaches (henceforth IRB, see Repullo and Suarez, 2004), as will be explained below. In general, the simpler SA method contains a bit more security surcharge in relation to the more sophisticated IRB approaches (according to Wilkens *et al,* 2007).

Standardised Approach (SA)

In the SA banks stick to the 8% capital requirement of weighted total exposure in order to calculate the regulatory capital. Regarding secured loans, banks' own Credit Risk Mitigation Techniques (henceforth CRMT, Suyter, 2008) apply. Concerning the acknowledgement of securities, a simple or a more comprehensive approach can be used. In short, the first is based on a substitution equivalence principle; within the latter, a broader range can be taken into account such as investment funds (Schumann and Daldrup, 2005), using 'haircuts' (see below) in order to add a security buffer. In

addition, one of the interviewees (see section 6) points out that an important element of the SME package included SME affine securities. The CRMT regulation covers qualitative issues, for example, a non positive correlation of creditor and borrower, and quantitative issues like so-called 'haircuts' ('safety reductions', BCBS, 2004) or the introduction of floors which avoid the Loss Given Default (see below) falling below certain thresholds (e.g. 35% for accounts receivables, see Suyter, 2008).

Creditors are ranked in seven classes via external ratings, to which specific risk weights are applied. For example, 'other retail' gets a risk weight of only 75% whereas corporate loans have a risk weight of 100%, as in Basel I, if they are not rated under national discretion (BCBS, 2004:19). Otherwise the weight will be between 20% and 150% depending on the respective external rating (Schumann and Daldrup, 2005). According to the German regulation Solvabilitätsverordnung (henceforth SolvV), paragraph 52 and paragraph 53 (Suyter, 2008), DBRS, Fitch Ratings, S&P (McGraw-Hill Companies) and Moody's are accredited in Germany. This differentiation is especially important regarding SMEs (see hypothesis 2.a) which will be discussed in section 2.5.2, as SMEs can be included in the favourable 'other retail' group under certain conditions. Paul (2007a) attributes this to a natural risk diversification in retail portfolios.

Internal Rating Based (IRB) Approaches

Within the novel IRB approaches the capital requirements vary based on ratings which are carried out by the bank internally. The IRB approach means that regulatory capital is based on the '*inherent risk that each obligor, or homogeneous group obligors, add to the credit portfolio of each bank*' (Saurina and Trucharte, 2004:123). The application of the IRB-approach is subject to approval by national supervisors (Jacobson *et al*, 2005). Credits are divided into five risk classes: sovereigns, banks, corporate (with five sub-classes of specialised lending and purchased receivables), retail (with three

sub-classes and purchased receivables), and equity (BCBS, 2004:48). Therefore, banks have to assess the following risk components (based on Lamy, 2006 and Suyter, 2008):

- 'Probability of Default' (henceforth PD), of a creditor or a group of creditors ('PD bucket', Krink *et al*, 2008) by means of internal rating: banks are required to have at least a one-year PD estimate per rating class. Therefore, enough data is to be collected for at least one economic cycle. Schwaiger (2008) suggests that PDs can directly be derived from score values of the rating system.
- 'Exposure at Default' (henceforth EAD): EAD is, in simplified terms, the height of credit at the time of the default which may be a result of creditors' decisions or external conditions in case of market-driven exposures.
- 'Loss Given Default' (henceforth LGD), expressed as a percentage of exposures, is an estimate of the portion of any exposure that will be lost when a creditor defaults (in the SA the LGD is fixed for unsecured credits).
- Maturity of Exposures (henceforth M), the effective remaining time until the credit has to be repaid (in the SA 2.5 years are used for M).

These variables build the basis for the so-called 'risk loss function' to calculate the regulatory capital for unexpected losses (see below). If banks run one of the two IRB approaches they are required to apply the SA as a means of comparison and consistency checking (Rowe, 2004). Within the IRB approach banks can choose between the so-called Foundation Approach (henceforth F-IRB) and the Advanced Approach (henceforth A-IRB). Using the F-IRB approach, banks primarily estimate the PD values and carry over estimates from supervisors for other variables (BCBS, 2004):

- The PD values are calculated as the average default probabilities over at least a five year period. Krink *et al* (2008:2275) point out: 'Within such a system [rating], a key role is played by the PD.'
- EAD is defined as outstanding or used credits, plus granted but not yet used credit approvals, the Credit Conversion Factor (henceforth CCF,

Suyter, 2008). The latter is '0' if the approval can be withdrawn at any time. Within the A-IRB approach a bank can make its own CCF estimates.

> Within the F-IRB approach the Loss Given Default (LGD) (see below) ranges between 45% and 75% for unsecured loans. Regarding secured loans a bank can use the comprehensive CRM approach. A-IRB banks instead can use their own LGD judgements (Suyter, 2008) based on 'best-practices'. Furthermore (nearly) all kinds of securities can be taken into account.

> M is fixed to 2.5 years in the F-IRB approach; a middle value is used in the A-IRB approach with certain floors and caps.

The internal or external rating consequently has a strong influence on the capital requirement (see hypothesis 2.a) as rating determines the PD and LGD (Lamy, 2006). Therefore, the A-IRB approach requires much more sophisticated systems and methods in order to derive this granular risk adjusted regulatory capital. Furthermore, all credit securities can fully be taken into account, which is not the case under F-IRB (Suyter, 2008). Regulatory capital regarding credit risk (see Figure 5) is therefore calculated in the IRB approaches as follows (BCBS, 2004:57-60):

RC (regarding credit risk) =

RC_{CR} = RWA x SC
RWA = EAD x K
with **K = f(PD*, LGD, M*) * UL-only**

RC_{CR}	= Regulatory Capital (Credit Risk)
RWA	= Risk Weighted Asset
SC	= 8% (= Solvability Coefficient)
EAD	= Exposure at Default
K	= capital requirement function
PD*	= 'modified PD' (Lamy, 2006), the PD modification contains a further coefficient and an SME deduction (Size Adjustment Factor) of up to 4% (Schwaiger, 2008)
LGD	= Loss Given Default
M*	= MAF, the Maturity Adjustment Factor (Schwaiger, 2008),
UL-only	= 1.06 (see below, adjustment factor from EU regulators due to 'UL-only' calculation)

Figure 5 Basel II IRB Regulatory Capital scheme Credit Risk

Originally it was planned (see third Consultative Paper, BCBS, 2003) to take expected losses and unexpected losses into account. This was changed due to criticisms from banks: they argued that in the case of expected losses, a double provision would take place as banks already make specific provisions for expected losses (Schumann and Daldrup, 2005). Therefore, with the April 2004 consultations (BCBS, 2004), only unexpected losses were taken into account in the credit risk related regulatory capital. Therefore, a UL-only surcharge of 6% was added which brings the regulatory capital close to the Basel I level. According to Schwaiger (2008), this was intended by politics: based on Creditreform data the average in Germany would be 7.22% including operational risk charges (Schwaiger, 2008).

As a result, the capital charge curves (that means Risk Weight Assets x 8% in relation to PD) became more flat (Suyter, 2008). Furthermore, there is a distinction related to the size of the company – SMEs get a special linear deduction (between 50 and 5 million euros, BCBS, 2004, 60) in the corporate curve of up to 4% (Schwaiger, 2008).

In order to comply with Basel II, especially with the (A-)IRB approach(es), a bank has to fulfil certain criteria, such as a substantial risk differentiation in '7 + 1' classes (the last one is the default class), an adequate rating system, a valid data track record via effective IT-systems, valid one-year PD estimates (and the other variables in the F-IRB approach), stress tests and disclosure requirements (Suyter, 2008). However, according to Suyter (2008), stress tests incorporate deviations of around 30% which are minor compared to a PD change of 0.37 to 1.38 from BB+ to BB-. Regarding the internal rating systems, the controlling feedback-loop should entail calibrating, planning and validating the system on an on going basis (Schwaiger, 2008).

As the IRB requires a data history between three years (PD) and seven years (EAD and LGD), there are transition periods, for example, regarding the PD of two years (BCBS, 2004). However, cherry picking (Suyter, 2008) should be avoided as in general all elements have to be applied regarding the approach chosen within a certain period of time.

2.3.2 Market Risk

Market risk (BCBS, 2004:188) comprises the risk of losses derived from changes in market factors. In the Standardised Approach (SA) this contains: equity risk (risk of changing stock prices), interest rate risk (changes in interest rates), currency risk (changes in foreign exchange rates), and commodity risk (changes in commodity prices like raw materials).

Within the Internal Models Approach (henceforth IMA) the most common methodology for measuring operational risk is Value at Risk (henceforth VaR) as a financier's equity holders can benefit from risk-based capital requirements according to Dangl and Lehar (2004). VaR is the maximum loss not exceeded – with a given probability defined as the confidence level over a given period of time. Regarding Basel II, a period of ten days is taken into account (BCBS, 2004:39). VaR has several limitations (see section 2.10) which are derived from the underlying assumptions. One is that the portfolio composition has to be stable over the period under review. Furthermore, other changes, like changes in interest rates or embedded options, are not taken into account.

However, specific risk measures can be used to address changes in special investors, for example, if certain sectors experience unrelated changes to the rest of the market.

For estimating the VaR value (that is the maximum value at risk) various methods could be used (BCBS, 2004:108), such as variance-covariance (VCV, based on a normal distribution assumption), historical simulation (the distribution in the future is assumed to be the same as in the past) or Monte Carlo simulation (using a random simulation of future returns, see Train, 2009:267). By using an empirical model, Pérignon *et al* (2008) point out that banks overestimate the risk by introducing an empirically not justified conservative security buffer, despite sophisticated models. However, the results are based on a period between 1999 and 2005 – well before the subprime crisis.

2.3.3 Operational Risk

Schmidt (2007) argues that the expected reduction in credit risk by 12% will be compensated by the operational risk charges. Operational risk is defined as '*the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events*' (BCBS, 2004:137-157). According to Kaiser (2007), operational risk is included due to high levels of realised losses from Barings or Orange County, for example.

It is allowed for a bank under the regime of the New Accord to use and apply its own definition if certain minimum criteria are fulfilled. The required event types are (BCBS, 2004, Annex 7): internal fraud (misappropriation of assets, tax evasion, intentional mismarking of positions, bribery), external fraud (theft of information, hacking damage, third-party theft and forgery), employment practices and workplace safety (discrimination, workers' compensation, employee health and safety), clients, products, and business practice (market manipulation, antitrust, improper trade, product defects, fiduciary breaches, account churning), damage to physical assets (natural disasters, terrorism, vandalism), business disruption and system failures (utility disruptions, software failures, hardware failures), execution, delivery, and process management (data entry errors, accounting errors, failed mandatory reporting, negligent loss of client assets).

Grody *et al* (2008) point out that the Basel Committee overturned itself with its Consultative Paper of 2003 by redefining operational risk to the assessment of risk rather than the measurement. This led to a 'dashboard-like' categorisation.

In order to deploy this standard the Basel Committee (BCBS, 2004:137-141) prescribes one of the following three methods in order to quantify operational risk (see Dutta and Perry, 2007):

> The Basic Indicator Approach (henceforth BIA) is recommended primarily for nationwide operating banks. It is based on the annual revenue of the

financial institution: the operational risk capital required is related to the last three years average gross income (years with positive income only). The percentage is set by the Basel Committee.

- The Standardised Approach (SA) uses a likewise average method but on an aggregated business line basis. Within Basel II eight business lines are distinguished (BCBS, 2004, Annex 6): corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management, and retail brokerage. The gross income figures for the business lines are 'weighted' with a beta factor setting the industry average of operational risk in relation to the average gross income for the respective business line. As this approach needs a higher sophistication regarding each business line, banks have to demonstrate that they have the management capacity to assess the operational risk framework for all business lines (BCBS, 2004:141-142).
- Within the Advanced Measurement Approaches (henceforth AMA) banks are –subject to prior approval of the respective national regulator – allowed to use their own risk measurement framework if this complies with the standards prescribed, such as scenario analysis. As this approach is much more difficult to assess, a special focus is laid on the involvement of the top-management, the soundness of the system, and the resources spent to implement this system. Internal operational risk management must be '*closely integrated into the day-to-day risk management process of the bank*' (BCBS, 2006:143).

Whereas BIA and SA were permitted from 2007 in Europe, AMA could be used from 2008 onwards (Suyter, 2008). Chapelle *et al* (2008) developed a procedure to implement the AMA approach regarding operational risk. In doing so they point out that active management results in substantial savings. According to Grody *et al* (2008), the capital allocation for operational risk can be limited by up to 20% by mitigating strategies such as insurance.

Regardless which approach is used, the bank has to establish an Operational Risk Management framework. This has to include the identification, measurement, monitoring, reporting as well as a control and mitigation framework for operational risk. However, Chavez-Demoulin *et al* (2006:2635) point out '*that a full quantitative approach may never be achieved*'. Therefore a bank internal 'risk culture', which is the goal of the risk-adjustment performance measurement (RAPM), is needed. And it is needed externally in an interconnected world (Grody, 2008). This seems especially true taking the effects of the subprime crisis into account.

2.4 BASEL II - PILLARS 2 AND 3 (SUPERVISORY REVIEW PROCESS, MARKET DISCIPLINE)

Researchers reflect the effect of Basel II on corporate financing mainly by analysing Pillar 1 (see, for example, the literature under review in section 3). This is not surprising, as authors like Decamps *et al* (2004) point out: they state that the Basel Committee is far less precise on Pillar 2 and especially Pillar 3. The amount of pages dedicated to Pillar 1 in the third Consultative Paper (BCBS, 2003) is nearly 10 times greater than the Pillar 2 and Pillar 3 sections. Whereas the Basel Committee is precise on quantifying regulations on Pillar 1 it remained vague regarding the latter ones.

However, the so-called Pillar 2 (supervisory review process) and Pillar 3 (market discipline) also have significant effects. For example, disclosure requirements will have an influence on risk taking in relation to lending in general, and lending to SMEs in particular, as the latter are regarded as being more risky (see, for example, Dietsch and Petey, 2004).
Based on a large set of statistical data from 76 countries Pasiouras (2009:2) provides evidence, in relation to Pillars 2 and 3 'that banking regulations that enhance market discipline and empower the supervisory power of the authorities increase both cost and profit efficiency of banks'. According to this

finding, the regulation has an intrinsic value, even for the 'supervised' and 'disciplined' banks, which may not be obvious to them at first glance.

The key principles of the Supervisory Review Process (henceforth SRP) of Pillar 2 includes '*guidance relating to … the treatment of interest rate risk in the banking book, credit risk (stress testing, definition of default, residual risk, and credit concentration risk), operational risk, enhanced cross-border communication and cooperation, and securitisation*' (BCBS, 2004:158). Therefore, integrated risk management is separated into two areas (Suyter, 2008): the Supervisory Review and Evaluation Process (SREP, including the Risk Assessment Process, henceforth RAS), and the Internal Capital Adequacy Assessment Process (ICAAP).

According to Suyter (2008) there are four basic SRP principles: bank internal procedures to assess capital adequacy, review of the bank internal procedures by the supervisory organisation, economic capital should be above regulatory capital, and an early intervention of banking supervision if complying with the minimum capital requirement is at risk. Loeper (2007) believes that the supervisory process does not only ensure that banks have enough capital, but enables a dialogue between supervisors and bank executives regarding risk management policies.

The Basel Committee (BCBS, 2004:175) regards Pillar 3 (market discipline) as complementary to the first two pillars: '*The Committee aims to encourage market discipline by developing a set of disclosure requirements which will allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment processes, and hence the capital adequacy of the institution*.'

Therefore, Pillar 3 (Rowe *et al*, 2004) sets the framework of information disclosure requirements regarding capital and risk numbers and the risk management practice. The aim is to enable stakeholders to get a deeper insight into the general risk position a bank has in order to assess the bank properly.

The effect on banking supervision, like Pillar 2 and Pillar 3, seems not to be consistent in the assessment by researchers, although the following authors do not explicitly reflect on Basel II: authors like Beck *et al* (2006) argue that an extended disclosure policy 'forces' banks to limit risk taking as their behaviour can be assessed and monitored. On the other hand, authors such as Barth *et al* (2004) or Angkinand and Wihlborg (2005) expect no significant effect on banking in relation to risk-taking and the chance to prevent a banking crisis.

2.5 SMES AND BASEL II

One of the most controversial elements of the New Accord has been the treatment of SMEs as SMEs comprise, in several economies, up to 99% of all corporations (European Commission, 2003a). Therefore the SME definition and classification is presented upfront. This is important as SMEs get, for example, a special size-dependent adjustment regarding the correlation coefficient in the corporate asset class, or could even be in the favourable retail asset class under certain criteria.

2.5.1 SME Definition

At the time of the formulation of a unified SME definition (European Commission, 2003b), approximately 23 million SMEs represented 99% of the EU-25 corporations with a workforce of approximately 75 million employees (European Commission, 2003a). According to Faccio and Lang (2002) these companies are primarily entrepreneur-owned. They state that 63% of their sample from 13 Western European countries had a single large shareholder who controlled at least 20%. In Germany, both quotas are even higher. The institute for Mittelstands-research (IfM, 2008) analysed the company register of the Ministry of Justice at the end of 2007 according to the EU definition: SMEs comprise 99.6% of all corporations (3.5 million in total), 39.2% of

revenues (4.494 billion euros in total) and 55.1% of all employees (23.8 million in total).

According to Wallau *et al* (2007) 95.1% of all German corporations are privately held businesses (henceforth PHB, see IBR, 2008), comprising 57.3% (13.4 million) of the employees and 41.5% (1.9 billion euros) of all revenues. Only 1,200 of these family owned businesses can be regarded as large enterprises with revenues beyond 50 million euros (out of 3,500 concerns in total from Germany). However, the term SME was, and is still, differently defined amongst the economic regions of the G10 initiating member states from Europe, the United States and Japan. In Germany the term 'Mittelstand', as a near synonym for SME, is quite common. However, in Germany the broader Mittelstand definition includes companies with up to 500 employees according to a widely accepted definition of the Institut for Mittelstandsforschung (IfM, 2002).

Furthermore, the SME definition, in economic areas like the EU-25, underwent significant changes on the verge of Basel II: '*Following the logic of a single market with no internal frontiers*' (European Commission, 2003b:36), the European Commission released a recommendation to unify the SME definition. This recommendation replaces an older one from 1996 (Recommendation 96/280/EC) and became effective on January 1st 2005 (European Commission, 2003b).

The headcount-figure still lies at the heart of the SME definition: '*The criterion of staff numbers (the 'staff headcount criterion') remains undoubtedly one of the most important, and must be observed as the main criterion*' (European Commission, 2003b:36). Whereas the headcount differentiations stayed stable, the total balance sheet amounts and the turnover figures were adjusted in order to take economic development and inflation rates into account. As a result SMEs are defined as companies which have up to 250

employees, a maximum turnover of 50 million euros and a maximum balance sheet total of 43 million euros.

SMEs are denominated as ‘micro enterprises’ / ‘small enterprises’ when the headcount is below ten / fifty, the turnover is at most two / ten million euros and the balance sheet total is a maximum of two / ten million euros, respectively. SMEs above the small enterprise category are called ‘medium-sized enterprises’ (European commission, 2003a). This classification is used throughout the thesis, for example, by segmenting SMEs into classes which are used in histograms (see section 5.1). Therefore revenue and number of employees both serve as a proxy for SME size.

Besides the resizing of the ceilings a focus was laid on two issues: in order to foster qualification, students and apprentices are not taken into account regarding headcount. The second issue focuses on the ‘autonomy’ of the SME which relates to subsidies to foster entrepreneurship as the backbone of the European economy (Saurina and Trucharte, 2004). Therefore cross-ownership of concerns is taken care of with reliefs for smaller investors, such as Venture Capital (see hypotheses 2.b and 3).

In other economic regions there are similar classification systems with certain deviations (SBA, 2008). For example, in the United States the ‘size’ classification is derived from the North American Industry Classification System (NAICS) by a special organization (Small Business Administration, henceforth SBA) based on specific industries’ size criteria (in many cases less than 500 employees and less than 28.5 million US-$ revenue).
However, it has to be noted that a classification in terms of size might not be the only valid criteria to classify SMEs: evaluation of a major set of Finnish SMEs by Hyytinen and Pajarinen (2008) concluded that ‘information opaqueness’ for SMEs is strongly related to the age of the SME, rather than to size.

2.5.2 Basel II Regulation Regarding SMEs

One of the central debates of Basel II has been about default probabilities in relation to company size – which affects the pricing of credit to SMEs. Based on empirical research by Benito *et al* (2004) and Bonfim (2009), related to similar good financial ratios, evidence is provided that smaller firms are at least not more prone to default than larger ones. Contrary authors like Bhattacharjee *et al* (2002), Bunn (2003), Eklund *et al* (2001) and Jiménez and Saurina (2004) state the opposite. As a kind of middle position Bernhardsen (2001) points out that the effect of size on default probability is not significantly pronounced.

Originally it was intended to place most of the SME credits into the corporate asset class. With its second Consultative Paper (BCBS, 2001a) a major debate was initiated: politics and industry, led by Germany and Italy (Quaglia 2008), have argued that SME corporate credits are exposed to a too high regulatory capital requirement. The lack of external rating (see hypothesis 2.a) and the high dependency of (German) SMEs on bank loans (Lütz, 2004, see hypothesis 1) confers on them a competitive disadvantage with the installation of Basel II. This might lead to a substantial reduction in credit supply to SMEs which could harm the economy to a major extent, as discussed.

Based on such criticism from practitioners, the Basel Committee announced the bringing forward of some changes, especially regarding the SME case (BCBS, 2001b). As Saurina and Trucharte (2004) point out, this distinction is derived from the view that SMEs depend much more on idiosyncratic risks than systematic ones (Bonfim, 2009), like economic downturn, which is the case regarding larger corporations and creditors. Therefore, the regulation was refined further and the recommendations were announced in October 2002 with the start of the third Quantitative Impact Study (QIS3, see BCBS, 2002) in a twofold way: firstly, the (corporate) risk weight curves were further

differentiated depending on the type of credit and size of a company. This comprises the special treatment of SMEs in the corporate class. The corporate curve for SMEs became more flat than the curve for major corporations due to a size adjustment factor which was introduced in the continuation of the Basel II definition process (BCBS, 2004:60).

Secondly, under certain conditions a bank can handle SME credit in the 'other retail' class, with an even more favourable credit risk curve. Prerequisites are: that the total amount of credit granted to an individual firm is below 1 million euros, that the process has to be handled as a mass process (rather than corporate credit), and that the SME portfolio must be significantly diversified in order to reduce risk (Allen *et al*, 2004). The rationale behind this is that SMEs are more diversified and therefore a preferred treatment under the beneficial retail curve is justified. As discussed, the SME risk weight in the 'other retail' classification is only 75% (BCBS, 2004:230).

The final presentation of the new curves took place in April 2003 (BCBS, 2003), together with the presentation of the third Consultative Paper. Figure 6 (taken from Saurina and Trucharte, 2004:132) shows the effect of the size adjustment factors for SMEs under the corporate curve regime. Figure 7 (taken from Saurina and Trucharte, 2004:133) shows that the 'other retail curve' is even flatter than the 'normal retail' curve. Such discounts are hardly feasible, as authors Aziz and Humayon (2006) argue, if an SME is rated and treated under the normal corporate curve.

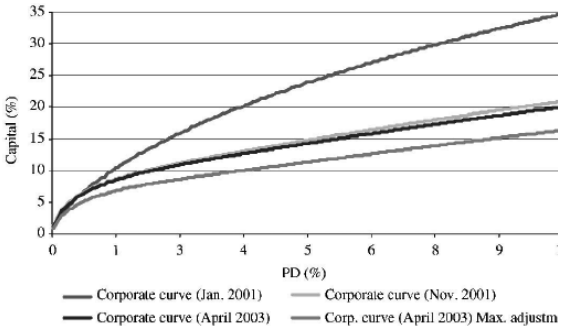


Figure 6 Development of corporate curves

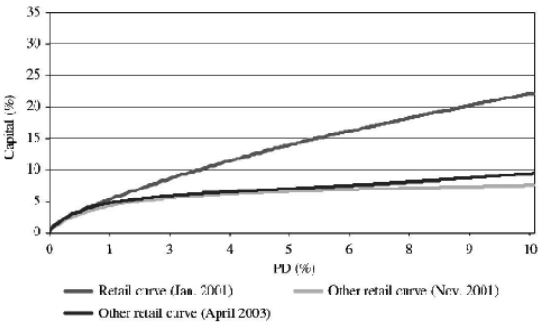


Figure 7 Development of retail curves

Therefore, knowledge of a bank's credit risk approach can serve as a decision criterion (see hypothesis 2.a), if and only if, the IRB approach in general has a negative impact on SMEs. Using a loan pricing equation model, which is based on the same risk factor model applied to calculate the capital charge, Repullo and Suarez (2004) show that a bank's risk model approach should be a driver for selecting a bank. If a low risk company switches to a bank which applies an IRB approach it will experience a cost reduction compared to Basel I. High risk companies can avoid rate increases by choosing a 'SA bank'. This is in line with Ruthenberg and Landskroner (2008) who believe that high-risk (SME) customers benefit from Basel II. They will approach smaller banks which use the SA.

Much attention has been paid to the effect Basel II imposes on SMEs. However, it should not be forgotten that the 'house bank relationship principle' (see hypothesis 1) is bidirectional. Saurina and Trucharte (2004) draw attention to the fact that the dependency is the other way around too. Derived from data of the Bank of Spain credit register they found that 70% of total credit exposure comprises SME credits. Berger (2004) highlights that small banks primarily serve SMEs, therefore, Hall (2006) regards small banks to be winners of Basel II due to moderate increases in the standardised approach.

2.6 BASEL II IN GERMANY

The major disruption in Germany has been the widespread introduction of ratings, as the German Mittelstand, in particular, had hardly any experience in the past. Therefore the transferral of Basel II into national law is explained, as well as the acceptance of ratings.

2.6.1 Basel II Regulation in Germany

The CRD was transferred to German law by means of changing the KWG. KWG is the German law for banking supervision (KWG, 2008), e.g. paragraph 10 concerned with 'risk classes' or paragraph 26a related to 'disclosure requirements'.
In Germany, Basel II became law as an amendment of the KWG (German law on credit sector regulation) and the SolvV. Within SolvV, the next regulatory layer (Steinbrück, 2006), Pillars 1 to 3 are covered in more detail, e.g. in terms of risk calculation methods. Finally, MaRisk (2007) provides the regulatory basis for an integrated risk management system regarding Pillar 2 (Gonsior and Hartschuh, 2007). MaRisk was defined in 2005 and came into effect in November 2007. It replaces the prior regulations MaH (trade book) and MaK (credit business) according to Schwirten and Zattler (2007). Wohlert (2007) makes an interesting statement by pointing out that MaRisk goes beyond banks – it should be extended to non-banks as it 'seems necessary' (see hypotheses 2.b and 3).

The last regulatory element so far comprises GroMiKV (2006), which has substituted Pre-Basel II regulation on 'major and million credits' since January 1st 2008. Regarding the acceptance of the IRB approach, Paul (2007a) points out that only 30 banks applied for bank internal ratings before June 2006. The federal banks tend towards rating scorecards (Merkl and Stäblein, 2007). The mutual savings banks have already bundled their resources (Hromadka and Döhring, 2007). These already have a valid risk system and therefore Basel II should not have a major change effect (which would indicate an alternative to hypothesis 1, and be in line with the statement of one top-level savings bank executive, as stated in the qualitative empirical section 6). Regardless of the various implementation modes, Paul *et al* (2007) state that Basel II initiated an 'SME hype in Germany' regarding the expected negative effects of Basel II.

2.6.2 Ratings in Germany – the Big Unknown

External ratings have been common in the US and the UK for years. The issue gained more public awareness elsewhere with the Basel II discussion, as Basel II banks can apply their own ratings. Even in academia there has been little research about internal ratings prior to Basel II, in Germany, as Krahnen and Weber (2001) point out. According to Mester (1997) 97% of banks use scoring which originated from pioneer work of Altman (1968, multiple discriminant credit scoring analysis). According to a survey by Altman and Narayanan (1997) profitability, leverage, and liquidity '*had the most statistical power in differentiating defaulted from non-defaulted firms*' (Allen *et al*, 2004:736). Scoring means that a bank abstains from lavish 'individual' rating measures regarding existing SME clients and uses substitutes, such as credit patterns or overdraft ratios, for evaluating smaller risks in Germany, instead (Krahnen and Weber, 2001).
Regarding SMEs (see hypothesis 2.a), a synopsis of several German studies provides a similar picture: only 8.1% to 14.6% of the SMEs (related to SME size) stated to be rated compared to 21.3% of companies with revenues beyond 50 million euros, according to an empirical survey by Plankensteiner and Zimmermann (2007:45). In reality, the ratio is significantly higher according to an empirical study by Zimmermann (2007): only 77.2% of companies which got a rating stated to be rated. In terms of small companies with revenues lower than 1 million euros the value is even lower (54.6%). The ignorance of ratings is conveyed by the fact that 74.5% of participants who did not know their rating, they just did not ask.

It shows that the bigger a company is the more it is educated about rating criteria: 79.1% of major companies with more than 50 million in revenues were knowledgeable about the criteria, compared to 41.1% to 77.6% regarding SMEs, ascending with revenue size (Zimmermann, 2007).

Brunner *et al* (200) stresses the advantage of internal ratings over external ones as they combine hard balance sheet data with soft factors, based on a deep knowledge of the lenders. Grunert *et al* (2005:528) argue that small banks in particular, which focus on SMEs, are good at rating soft factors. Based on an empirical study using data from four German banks there is evidence that the combination of financial and non-financial information '*leads to a significantly more accurate default prediction*' (see hypothesis 2.a). The importance of rating is illustrated in a survey by Zimmermann (2007): 38.7% of the participants with an improved rating experienced easier access to credits in contrast to only 12.4% and 8.2% with stable and deteriorated rating.

2.7 INTERNATIONAL APPLICATION OF BASEL II

In the EU, Basel II became a European Directive in 2006 (CRD, European Commission, 2006) which is applied to all banks and investment firms in the EU by means of national laws (Roldán, 2006). That means that the non-advanced approaches of Basel II came into effect in the EU on January 2007, and the advanced approaches from January 2008 onwards. Non EU-countries have either a different timeline or set-up a regulation partly similar to Basel II in recent years or will do so in the future.

Gentle (2008:207) sets Basel II in the context of various additional regulations imposed or planned during the last decade (see Figure 8).

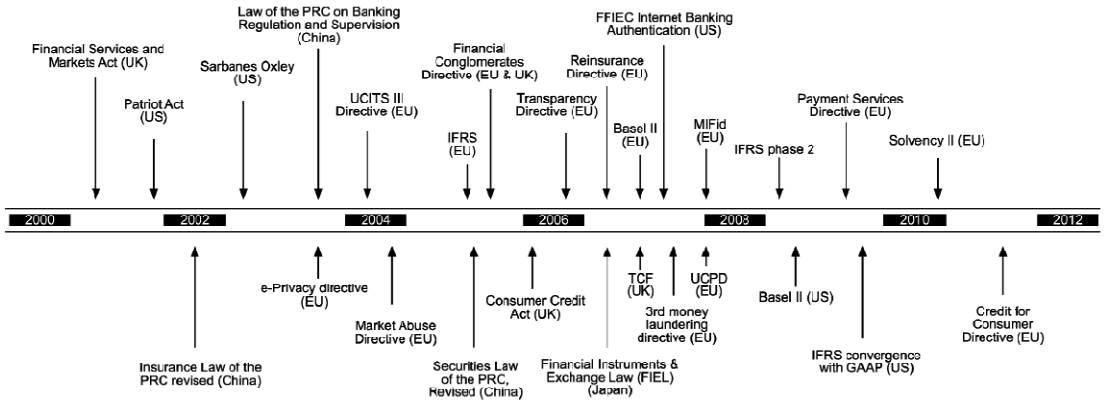


Figure 8 Financial regulation 2000 to 2012 (e) according to Gentle (2008:207)

In contrast, the US bank regulatory agencies ratified the New Capital Accord in November 2007 (Kroszner, 2007), after another delay in July 2007 (Martin, 2007): The application is, as yet, limited to the so-called 'core' banking organizations with total assets over $250 billion or more than $10 billion of on-balance-sheet foreign exchange exposure, with an effective date of April 1, 2008 (Agarwala *et al*, 2008). Furthermore, US banks have a three-year transition period; in 2008 only 10 banks fulfilled the requirements (Chernobai and Yildirim, 2008). Currently there are three Basel regimes in the US (Rubin and Nayda, 2008b): General (Basel I), established 20 years ago, Standardized Basel II, and Advanced Basel II.

According to Suyter (2008) A-IRB and AMA will be permitted from 2009 onwards so he expects that most banks will stick to Basel I. In addition, there is a three year introduction period for 'mandatory banks' (1st Tier banks with more than 250 billion US-$ in assets, Sharma, 2006) starting in April 2008 (Dugan, 2008). Standardized Basel II will come into effect in 2009 and US institutions expect 10% of banks to follow that route. For all other banks a 'Basel Ia', comprising a limited set of Basel requirements (with a kind of 'standardised approach') will apply for all other banks (Sharma, 2006). However, Webb Cooper (2009) points out that although small banks are

currently freed from Basel II regulation, there is already pressure on corporate governance of private banks to become more effective.

Oonagh (2005) provides some explanations for this hesitant behaviour: the fourth Quantitative Impact Study (QIS4, see BCBS, 2005a) amongst 26 American banks showed that the minimum capital would likely be reduced by 17%. This is not in the interest of US banking supervision as they intervene much more than their European counterparts (Oonagh, 2005). This is in line with Sharma (2006) who states that US regulators watch closely any attempt to lower capital requirements. The Comptroller of the Currency (OCC, 2007:1) state in their Basel II press releases that they '*retained several safeguards unique to the U.S. supervisory process*'. According to Berger *et al* (2008), large banks in particular showed an excess of capital between 1992 and 2006 above the regulatory capital. Rubin and Nayda (2008a) evaluate that capital savings from Basel II, amounting to US-$ 31 billion 'are not allowed to leave the system' by regulators. Oonagh (2005) argues that European and Australian banks are already more advanced on the road of Basel II implementation.

In order to expand the reach of Basel II the International Liaison Group (ILG, BCBS, 2007) was founded. The ILG includes – besides eight Committee member countries – 16 countries and further institutions from non-member states in five continents. In India, for example, Basel II principles will also be adopted, as Sensarma and Jayadev (2009:8) point out. The Reserve Bank of India issued *'a comprehensive framework for implementation of integrative risk management systems and lately Indian banks have been preparing for the implementation of Basel II norms'*. On the other hand, there is still a long way to go, as an empirical survey in the UAE (Al-Tamimi and Al-Mazrooei, 2007) shows: Basel II ranks low on agendas – only a few respondents of a primary study argued that the application of Basel II would improve the efficiency of risk management. It ranked eighth place out of ten places.

2.8 CRITICISM OF BASEL II

In general, it is not questioned by the researchers under review that Basel II is an advancement compared to Basel I. Yet, Basel II is criticised regarding general as well as several specific issues. First of all, there is the argument that imposing more and more refined regulation is counterproductive. Second, leaving alone the debate on the pros and cons of regulation, the following issues are raised most often in the literature under review:

The sophisticated approaches lead to a preferential treatment of large corporations, large banks and to a discrimination of emerging countries as they do not have such large banks. Basel II regulation enforces a pro-cyclical effect. Furthermore, academics raise methodical issues like the validity of ratings (see Schwaiger, 2008) and potential inconsistencies in the assumptions underlying, especially the risk model, of Pillar 1, as well as still existing discrepancies in relation to capital cushion.

2.8.1 General Issues of Imposing More Regulation

Whereas in other sectors, such as energy or telecommunication, deregulation took place to a major extent, the banking sector is still highly regulated and Basel II adds to that. Authors like Lindquist (2004) and Paul (2007b) derive this from the high importance of the banking sector regarding economic stability, which is based on financial stability. Using data from the 1893 financial crises in the US, Ramírez (2009) calculated that 1% increase in bank instability reduces output growth by 2-5%.

Brissimis *et al* (2008) highlight the positive effect of banking regulation. Based on empirical evidence from 10 new EU members they argue that bank regulation and bank competition both have a positive effect on bank efficiency. However, Kopecky and VanHoose (2006) refer to several

empirical studies which show that only a fraction of banks will be subjected to regulation. Kishan and Opiela (2006:282), for example, argue '*that merely having de jure capital regulations is not sufficient to obtain the results argued … Rather, they show that the constraint must be of a certain level or stringency, and enforced effectively for these results to hold.*' Based on an empirical explanatory model, Barth *et al* (2004) postulate that private-sector corporate control of banks and incentives for private agents to exert control should be fostered, rather than strengthening governmental or organisational control. By addressing the same issue, Decamps *et al* (2004:151) suggested, several years before the subprime crisis, that '*important reforms of the supervisory system have to be implemented as well, in order to guarantee independence of banking supervisors from political powers and also proper behaviour during future crisis*.'

Finally, by referring to the 86 opt-out clauses, Hall (2006) doubts that consistent application of Basel II throughout the economies will take place, although a special group in the Basel Committee should ensure consistency (Accord Implementation Group, henceforth AIG, BCBS, 2004:2). This is in line with apprehensions of German banks that a differentiated application of the CRD will lead to a distortion of competition (BdB, 2007).

Similar to the assessment on the effect of Basel II on SMEs (VanHoose, 2007), there are diverging views: authors like Kopecky and VanHoose (2006) argue that higher regulation, in principle, makes lending more expensive, especially to SMEs (Dietsch and Petey, 2004). Therefore the second part of the author's research objective / question regarding how SMEs can cope with Basel II becomes of high importance. As a successor of Basel I the New Capital Accord was set-up to refine the specific capital requirements. According to Angkinand (2009), the effect of bank capital regulation and supervision is related to risk taking. Author's like Barth *et al* (2004) and González (2005) conclude that regulatory capital limits risk taking. On the

other hand, researchers such as Calem and Rob (1999) estimate, in the dawn of Basel II that banks with a high capital cushion are more likely to take risks as they have a low PD for themselves. And finally, Blum (2008) adds to the human rather than the statistics side of regulation: even if Basel II was perfect there is the issue of fraud. In order to limit the damage imposed by 'dishonest banks' he proposes to set-up a leverage ratio as a restriction to enforce 'truthful risk reporting' as proposed in the Federal Insurance Deposit Corporation (FIDC) for the US. However, the deterrent effect depends on the height of sanctions ex post.

2.8.2 (Pro-)Cyclical Effect of Basel II

As the pro-cyclical effect under consideration of the current severe financial crisis is discussed in section 2.11, in this section the pro-cyclical effect in 'normal' up- and downturns is reflected:

One central criticism of Basel II is that the risk sensitivity of capital requirements might have a negative cyclical effect on lending (Kashyap and Stein, 2004, Blejer, 2006, Frese and Glüder, 2006, Hall, 2006 or Weber and Darbellay, 2008 on a pre-crisis basis or Marcucci and Quagliariello, 2009, after the start of the financial crisis). It is argued that in times of an economic downturn the PD predictions will increase which lead to a restricted lending policy. Goodhart *et al* (2004:613), for example, state that '*the new Basel II Accord may considerably accentuate the pro-cyclicality of the regulatory system*'. Using balance sheet data of EU banks between 1997 and 2004 Jokipii and Milne (2008) found evidence for the pro-cyclical effect of Basel II.
In addition, Zicchino (2006:68) points out that in times of high economic activity the capital kept will be lower under the new Basel regime than with Basel I. This makes banks '*more vulnerable to negative shocks*'. Jiménez and Saurina (2006) reflect on the cyclical effect of banks: high default rate in economic downturns is an outflow of excessive risk taking (which means

financial gearing) in times of economic prosperity. Based on a complex dynamic equilibrium model, Repullo and Suarez (2007) show that the high capital buffers built up during a boom phase under the Basel II regime will not be sufficient in the forefront of a recession.

However, authors like Pederzoli and Torricelli (2005) came up with a model to show how these contrasting effects could be reconciled based on an empirical study using US data. Pennacchi (2005:432) too regards an '*integrated risk-based deposit insurance*' as a remedy against the pro-cyclical effect. He bases his empirical findings on data from 42 banks. Bouvatier and Lepetit (2008) made an extensive Pre-Basel II pan-European survey in order to determine the influence of a provisioning system on credit fluctuations. Their findings provide evidence that a more dynamic provisioning system could lower the pro-cyclical effect.

2.8.3 Methodological Issues

Methodology issues cover a broad spectrum of the complex Basel II regulation – a number of major points of discussion in the literature are presented in this section:

Koziol and Lawrenz (2009) argue that the prime goal of banking regulation is better prevention of bank bankruptcy: therefore they promote a more dynamic approach as the static view of setting risks from bank's assets into relation to the current asset-liability ratio does not take future action of the bank into account. This is, however, needed to improve these factors (for example, by incorporating more deposits) which serve as a kind of incentive for future adjustments.

Whereas the stronger risk management approach is, in general, widely accepted, Blum (2008) points out that banks might underestimate their risks in terms of PD values as this lowers the regulatory capital. Therefore, he suggests a risk independent leverage ratio to distract banks from that and / or sanction otherwise afterwards. Krink *et al* (2008) adds that the focus on PD

related research lies in assigning credit exposure to a rating bucket and to assigning a PD value to the various rating classes; less effort has been made to defining the optimal bucket structure. Another critique on default probabilities relates to the issue of data validity – for example, BCBS (2005b), refers to the lack of sufficient (reliable) data regarding 'assumed' low default portfolios like it had been for banks in 2005. Kiefer (2009) opts for a mixture of a probability approach and expert opinion to solve that issue.

Another issue is that Basel II introduced a variety of somewhat arbitrary limitations, even in the F-IRB approach, which limits the accuracy of the bank's calculation. For example, regarding the maturity variable M, a floor and cap duration of 1 to 5 years is introduced, regardless of the actual M estimate of the bank (BCBS, 2004:68).
Suyter (2008) addresses other intrinsic issues, such as home-host-country problems regarding banking supervision with internationally operating banks, the issue of partial usage under certain circumstances, high risk weights for equity holdings, and the 'maturity premium' for credits with higher duration.

Johnston (2009) points out that the capital risk requirements for equity investments are 'quite different' from the ones for credit risk because the value of equity can be substantially reduced even before a default. He came up with a formula to quantify such risks by extending the Asymptotic Single Risk Factor (ASRF) approach.
Referring to the long-time undetected loss of 7.2 US-$ billion of Société Générale by a trader, Chernobai and Yildirim (2008) point out that the management of operational risk becomes more and more important. They developed a model for managing complex situations which covers multiple, longer ranging consequences of one occurrence. This is an extension of the predominant mono-causal statistical models.

Furthermore, criticism regarding operational risk addresses the fact that legal risk was entered in the definition late but was not described in sufficient detail. On the other hand, strategic risk (risk of making wrong strategic decisions) as well as reputational risk (risk that a company suffers due to a poor reputation) is not included (BCBS, 2004:137). In addition, Jarrow (2008), for example, developed a model to calculate losses related to operating technology and losses relating to agency cost, because the current approach is 'biased high' as it omits the NPV generation process.

2.8.4 Potential Inconsistencies in the Underlying Assumptions

An issue which is controversially discussed in several research studies under review, is the negative relationship between PD and Asset Correlation. Lopez (2004:265) points out that '*a key variable in the asymptotic single risk factor approach which is a central element in determining the Basel II regulatory capital is the correlation of a given firm's assets with the risk factor that summarizes general economic conditions*.'

This relationship underwent several changes in order to come up with a proxy, as otherwise the correlation had to be calculated for every borrower. Originally, the Basel Committee proposed a relationship value of 0.2 in January 2001 (BCBS, 2001a) for the common risk factor. Based on feedback from practitioners and their own quantitative studies, this was changed in November 2001 (BCBS, 2001b): asset correlations became a decreasing function of PD. Some researchers either do not question this assumption, like Altman and Sabato (2005), or provide evidence that this negative correlation is valid, such as Jacobson *et al* (2005). This is in line with Lopez (2004). His empirical research indicates further that firms are more correlated with the general state of the economy the bigger they are; a higher PD is related to idiosyncratic risks rather than the state of economy. Other authors, such as Dietsch and Petey (2004), however, question the committee's assumption of a negative relationship between PD and Asset Correlation. Medema *et al*

(2009:701) add to the discussion by pointing out that the historic data basis of banks is too weak to provide an adequate basis to validate the PD ratios. Therefore, bank regulators have to enhance the effort of '*testing model validation processes*'.

Besides the PD ratio there are other areas: to name just one, Kaplanski and Levy (2007) evaluated the various VaR approaches and came to the conclusion that requirements above the optimal level (and the Basel Range is within this area) lead to inefficient regulation in terms of reporting and disclosure policies. Jarrow (2007:15) goes even further claiming that the IRB approximation is only a very rough approximation of an ideal capital rule as the risk measure (VaR) is '*not conceptually appropriate*'. This seems especially true in the current financial crisis (see section 2.11).

2.8.5 Validity of Internal or External Rating

According to the New Basel Accord, banks can use their own estimates, which build the basis for capital requirements regarding their own ratings, or rely on external ones in the SA. The importance of the rating issue is reflected in hypothesis 2.a and the second part of the research objective / question relating to how SMEs can cope best with the effect of Basel II.

In the context of internal vs. external ratings, Löffler (2004) points out – especially in relation to the current economic crisis – that external rating agencies use a through-the-cycle-method (with a high stability but a low 'default prediction power') rather than a point-in-time approach as with banks and their internal ratings which reflect 'current conditions'. This is in line with Russell-Walling (2007). In addition, Hall (2006) highlights that Basel II pundits question the credit assessment rating validity produced by credit agencies, with respect to highly rated corporate failures in the past. Stolper (2009) argues that there is great danger of making 'courtesy expertise' as the rating organisations are paid by the issuer rather than the investors. He came up

with a model which should provide ‘inflated ratings’ and could build the basis for national regulators to punish or reward rating agencies based on past prediction performance.
Furthermore, there is the issue of information opaqueness and correlation regarding external ratings: rating agencies publish all public ratings whereas a firm can decide whether a private rating is disclosed or not (Mählmann, 2008). As SME ratings are therefore not published automatically, an investor cannot be sure if a company has not been rated or if it just does not want to publish its (poor) rating.

Güttler and Wahrenburg (2007) analysed the behaviour of the leading rating agencies Moody’s and S&P. There seems to be a high correlation in the short term, especially regarding downgrades. If one rating agency ‘downgrades’ a company this will ‘trigger’ a downgrade by another rating agency. In addition Liao *et al* (2009) illustrate that external rating does not provide information about a bank’s default probability or LGD. On the other hand, regarding bank internal ratings, Cifuentes (2007) asks how valid the internal ratings will be in relation to specialised rating agencies. Schwaiger (2002), for example, points out that one of the main obstacles will be to come up with up-to-date information regarding a variety of parameters such as ‘quality of cash-flow (predictions)’ or ‘current position in industry’. Whichever approach is used, the rating issue will have implications on the regulatory capital, regarding SMEs in particular, as rating has been so far an issue primarily for the major companies (Plankensteiner and Zimmermann, 2007). Bartels (2002:49) even regards Basel II as a ‘*new credit risk factor*’. He argues that the German Mittelstand will have problems in getting valid ratings as they are not used to the process and are ill prepared in terms of the documentation of soft factors, like strategy (in line with findings from the qualitative analysis, see hypothesis 2.a). This view is supported by Plankensteiner and Zimmermann (2007): in the year 2007 13% of companies in their survey were rated compared to 9% one year ago.

According to Tschemernjak (2004) getting adjusted to ratings is, in a way, a means in itself: he argues that internal ratings enforce better risk management and therefore better stability and control of a bank's activities. Besides external or internal ratings from rating agencies, Carling *et al* (2007) refers to the possibility of using values from credit bureaus as a more direct way. However, there are authors like Weber and Darbellay (2008:1-2) who believe '*that the ratings-based regulation has negative effects on the financial markets*'. The use of ratings '*may have changed the structure of the (private) rating industry*' and therefore fosters the pro-cyclic effect.

2.8.6 Arbitrage Issues

Despite intense discussion about the new regulatory capital, one issue must not be overlooked. Whereas a bank is free to choose a method most suitable to calculate EC which covers all kinds of risk from a bank's perspective, the calculation of RC is much more restricted by regulators (Rowe *et al*, 2004). Authors like Peura and Jokivuolle (2004) point out that the Basel II dynamic, which is based on ratings, is only one parameter which determines the capital cushion. Considerations such as bank income and default losses are other important parameters as well. Therefore, for example, banks hold capital above the required minimum in order that they do not run under supervisory intervention, facing the respective consequences like losing market confidence and reputation (Furfine, 2001). In this context, Zicchino (2006) believes that the potential cyclical effect of Basel II might bring regulators to request banks to hold economic capital above regulatory mandatory levels in order to ensure that banks will not get in trouble in times of economic downturn.

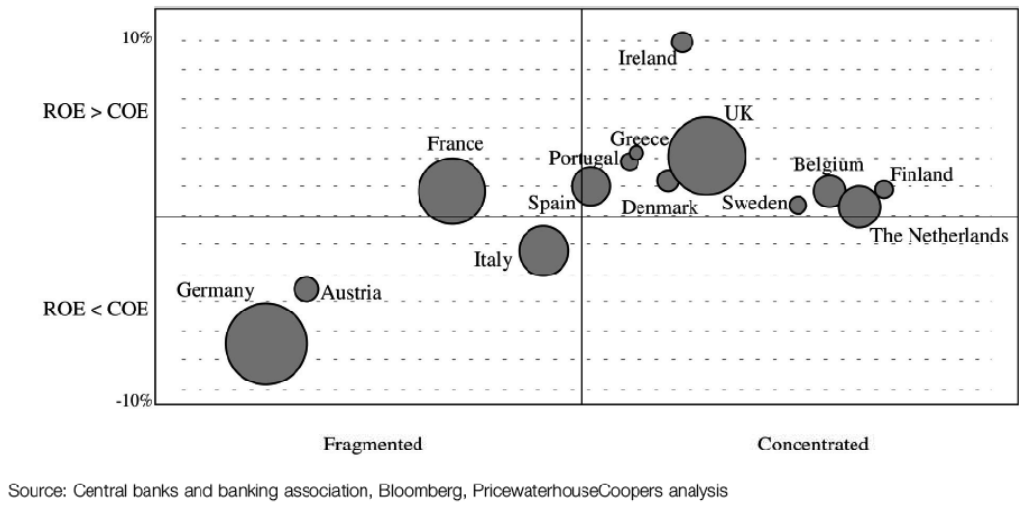
In order to provide a better consistency in the future an internal portfolio based model will be introduced with a Basel II + X (Suyter, 2008).

Furthermore, there is the issue of cross-border control which is of particular concern in the twelve new EU member states where 69% of banks showed foreign ownership in the year 2005, compared to 33% in the older EU member states (Eisenbeis and Kaufman, 2008): Agarwala *et al* (2008) note the 'home-host-country' problem, as regulatory requirements will differ between countries in the given framework – for example, different interpretations between the US and Europe as discussed already in section 2.6. In a pointed article, Mainelli (2008:410) states that regulation, especially Basel Accords I and II created incentives for off-balance sheet finance which leads to the 'traditional approach' of '*great short-term financial returns and increased bonuses, high gearing and high leverage*'.

2.8.7 Discrimination of Emerging Countries (and Small Banks)

One would believe that the A-IRB approach would be adopted quickly as, for example, Tschemernjak (2004) estimates that applying the A-IRB approach could reduce regulatory capital by approximately 20%. This correlates with the Altman and Sabato (2005:33): within their model they calculated a 25% discount in capital requirements using the A-IRB approach.

However, the answer is not that simple as huge implementation costs are required to install systems and procedures to comply with Basel II: Kolbeck *et al.* (2002) estimate that small and medium-sized institutes (which had a typical SME 'house bank function' according to Berger, 2004, see hypothesis 1), with up to 100 billion euros in total assets, will initially have to spend up to 10 million euros. This is a major investment taking the low, or even negative, profitability within European banking into account (Barfield, 2004a, see Figure 9: comparison of Return on Equity (RoE) and Cost of Equity (CoE)).



Source: Central banks and banking association, Bloomberg, PricewaterhouseCoopers analysis

Figure 9 EU banking market (Barfield, 2004a:87)

Cornford (2004:26) considers this with reference to the third Consultative Paper (BCBS, 2003). He estimates that less developed countries will use the SA for reasons of compliance and costs. Therefore, these economies might be excluded from accessing cheaper capital as the less refined SA induces, in general, a more conservative capital allocation, as discussed. In addition, Blejer (2006) points out that the pro-cyclical effect might especially be harmful to emerging countries if they do not apply other means of counter-actions.

2.8.8 Discrimination of SMEs

The issue of the effect on SMEs is only touched upon from a practitioner's point of view, as this is the main objective of this thesis. According to Beyer (2009), the following relates to Basel II: the traditionally low equity capital of German SMEs, in general, lowers their rating (see hypothesis 2.a) although the equity ratio allows, in general, a statement about business perspective and market position. Basel II therefore fixates market positions as companies who do not need credit to enhance their position are rated best.

2.9 CORPORATE FINANCE SUPPLY AND DEMAND ISSUES IN GERMANY

The research objective is to evaluate the effect of Basel II on SMEs from both sides – the SMEs' as well as the financiers' perspective. Therefore, supply and demand issues are introduced in sections 2.9.1 and 2.9.2 as the 'forecasting of market outcomes under changed conditions requires an understanding of supply, as well as of demand' (Train, 2009:328). After which, the information infrastructure regarding bank credits is explained in section 2.9.3.

2.9.1 Supply Issues of Corporate Finance in Germany

As discussed in section 2.10 the supply of credits to SMEs in Germany can be clustered into bank credits and non-bank credit means of supply, such as private equity / venture capital, alternative forms of finance, including mezzanine, factoring, leasing and stock markets by means of IPOs.

Credit Financing

Regarding the supply side, banks were in a dominant position in the Pre-Basel II era. According to Sandvoß (2007), only one out of 10 long-term credits between 1970 and the year 2000 were facilitated by a non-bank intermediary. It is, therefore, no wonder that interest rates are regarded as being by far the most important factor regarding financing, according to several practitioners' research studies (see Hollasch and Berg, 2007, or Frey and Kuhn, 2007, for example).

According to Quaglia (2008), the universal banks in Germany can be grouped in three sectors: private commercial banks (including subsidiaries like special banks for mortgage loans), savings banks and co-operatives. In 2002 the 'big four' private commercial banks comprised 16% market share (all: 28%), the savings banks 36% and cooperatives 20%. The rest accounted for special banks.

The trend seems unequivocal (BdB, 2008); whereas the credit volume issued by commercial private banks to corporations and freelancers declined from 39.0% (corporate credit volume to balance sheet equity) in 1990 to 14.8% in 2007, in relation to the balance sheet total, it rose in the same period from 26.2% to 27.1% for the savings banks. A further detailed evaluation of credit financing in Germany is provided in section 2.10.1 and 2.10.2.

Non-Credit Financing

As will be explained in sections 2.10.3 to 2.10.5, private equity, stock markets and other alternative forms of corporate finance gained momentum in the past few years with reference to SMEs – with Basel II being an important factor.

Private Equity

Although the effect of Basel II is mainly discussed in the context of credit, it should not be neglected that the regulation affects private equity as an 'alternative' to bank financing (see hypotheses 2.b and 3). Experts from the German Private Equity and Venture Capital Association (henceforth BVK) argue that the capital requirements might rise for banks which 'own' a venture capital fund. This makes it much more difficult for banks to invest in venture capital funds (Cowley, 2002). Based on a theoretical model, Bongaerts and Charlier (2009) show that under the Basel II regime simple risk weight approach (standardised approach), capital requirements for private equity investments are higher (12%) than the average capital requirement in public equity (8%), which will lead to a 'competitive disadvantage' with banks being the second largest investor in private equity in Europe. However, if banks use the CRD IRB-approach derived from the Basel II framework, the opposite is true, giving banks with sophisticated measures an 'adverse incentive'. However, care has to be taken as the portfolio used in the model is well diversified and the focus is on leveraged buy-outs (henceforth LBO) which will become increasingly difficult.

The former German Minister of the Economy, Clement (2004), therefore expects a reduction in private equity investments in line with Suyter (2008). On the other hand he claims that the German Government was successful in alleviating the effects. According to probabilistic BVK statistics (Höppner and Ostmeier, 2009), companies with less than 50 million euros comprise 72.6% of all funds invested in 2008. In terms of employee size, companies with less than 500 (100) employees account for 87.2% (67.3%) of all investments. Therefore, the development and current status of private equity in Germany, in the light of Basel II and the subprime crisis, is explained in section 2.10.3 with a special focus on German SMEs.

Stock Markets

Despite being the biggest economy in the European Union, Germany ranks only in third position with a 7% share of IPOs and a 7% share in issuing volume (Frommann, 2007a), after the London Stock Exchange (with 58% and 37%) and Euronext (with 11% and 32%). The German Share Institute (Frey and Kuhn, 2007) undertook a study regarding Mittelstand and the stock market: 24.1% of the major SMEs (more than 5 million euros of revenue and even beyond 500 million euros) were thinking about an IPO, while 80% considered alternative forms of finance. However, regarding smaller SMEs an IPO is more of a theoretical option which will be evaluated in section 2.10.4.

Alternative Forms of Finance

On the verge of Basel II other ‘alternative forms’ of financing became more prominent in Germany too, which led the author, amongst others, to postulate hypotheses 2.b and 3. The focus is on mezzanine, leasing, factoring and ABS, as explained in section 2.10.5. Hollasch and Berg (2004) regard mezzanine on the verge of Basel II as an important instrument for small and medium-sized companies to escape the ‘credit crunch’. In terms of the future, CFOs of major Mittelstands-companies (SFS, 2003) rank leasing and

factoring with its 'off-the-balance-sheet liquidity effect' as the financial instruments of highest importance.
According to Hofmann *et al* (2007), another form, Asset Backed Securities (henceforth ABS), showed growing importance in recent years in corporate financing.

2.9.2 Demand Issues of Corporate Finance in Germany

As discussed in section 2.9.1, on a Pre-Basel II basis credits were almost exclusively the only source of finance. The credit volume for corporations rose from 759.9 billion euros in 1999 to 873.1 billion euros in 2007 (BdB, 2009). In the year 2006, 900,000 out of approximately 3.5 million German SMEs (IfM, 2008) which wanted to invest carried out credit negotiations due to a positive economic climate. On the verge of Basel II the overall bank credit volume in Germany grew to 60 billion euros in 2006 (Reize, 2007). However, credit demand outpaced supply between the years 2004 and 2006 by far. It rose from 100 billion euros to 145 billion euros (Reize, 2007). As discussed in sections 2.10.3 to 2.10.5, the demand for non-credit sources of finance grew as credit demand outpaced supply, as stated above.

2.9.3 Information Infrastructure regarding Credits in Germany

There has been insufficient attention shown to the information infrastructure (in relation to SMEs) that is available to lenders for making credit decisions in Germany.
The information infrastructure used by SMEs to make credit decisions in Germany consists primarily of banks and chartered accounts as the prime source of information. This is acknowledged by the findings from the quantitative survey (see section 5). According to Deloitte & Touche (2007), 80% of SMEs participated in a survey stating that they get information about financing options from banks which operate in a fragmented sector. Lahusen (2004) states that the number of banks fell by 40% between 1993 and 2002.

However, the number of banks and branch density is still approximately twice as high as the EU average. In 2007, Germany accounted, with 2,026, for one third of all European credit institutes and 21.6% of all 183,981 bank sites, according to the German Banking Association BdB (2009). The top five institutes account for only 22.0% of market share compared to the 54.7% EU average. Banks are followed by chartered accountants with less than 60% (Deloitte & Touche, 2007). The ranking supports the empirical findings of the author, as described in the quantitative section 5.

Regarding banks, the information infrastructure can be classified into banks for ‘normal bank credits’ and ‘state-owned’ banks who provide subsidised credits. The latter consists of the national bank KfW (the provider / aggregator of EU funds and national German funds) and the ‘Landesbanken’ of the 16 federal state banks with their own subsidised credits. However, ‘subsidised credits’ for SMEs were handed out via the house bank (BdB, 2005) which comprises, according to the German Savings Bank Association (henceforth DSGV), to a large extent, the savings banks (DSGV, 2005). Therefore they should play an important role in information about subsidised bank credits. However, as the margin regarding ‘subsidised credits’ is 1%, i.e. very small, the ‘classic house banks’ do not provide information proactively. This is in line with the information collated during the interviews in the background gathering and qualitative phase. Therefore KfW or the ‘Landesbanken’ spread information by means of their internet homepages, as well as publications.

With regard to chartered accountants, the market is also very fragmented. According to the Chartered Accountant Association IDW (2010), 85.62% of the 13,002 members comprise individual chartered accountants and only 14.38% associations like BDO, O & R Oppenhoff & Rädler, Rödl & Partner, or Rolfs WP Partner which focus on SMEs.

The many small chartered accountants act more like ‘bookkeepers’ rather than advisors on corporate financing too (see interview with the Managing Partner of a major chartered accountant with an SME focus, in section 6). In addition, associations like Bundesverband Mittelständischer Wirtschaft (BVMW, German SME Association) or the Chambers of Commerce (umbrella organisation DIHK as well as the regional chapters, the local IHKs) are part of the information infrastructure. However, the findings from both the quantitative analysis (see section 5), as well as the qualitative analysis (see section 6), provide evidence that this function is not fulfilled. Furthermore, dedicated finance and SME journals exist, such as ‘Finance’, which regularly publish information about ‘SME credits’ like Arons (2008), for example.

2.10 CORPORATE FINANCING IN GERMANY ON THE VERGE OF BASEL II

As already discussed in the introductory section, Basel II imposes a major effect on corporate financing – regarding credit and other options like private equity, IPOs and so-called alternative forms of financing as well. Based on the supply and demand overview of section 2.9, the status and development of corporate financing in Germany will be explained in detail in the light of Basel II. In addition, the interlinkage between rating and corporate financing is explored as rating induces a prime paradigm shift within the New Accord, especially in Germany, which is reflected in hypotheses 2.b and 3.

Credits are still of the highest importance, according to a Pre-Basel II study by Deloitte & Touche (2007), amongst 266 German SMEs. This can be related to a strong quest for autonomy: according to Mach (2008), the top financial priorities of Mittelstands PHB’s are flexibility and liquidity, closely followed by preventing the influence of external capital providers.

However, alternatives to credit gained momentum in Germany, as discussed in sections 2.10.3 to 2.10.5. Furthermore, both topics seem to be interlinked with each other. Whereas on an international basis increased competition and unreasonable expectations of sellers seem to be the major private equity obstacles, according to a survey from Charnaud *et al* (2006:5). Contrary, in Germany the availability of credit is the number one obstacle due the '*low equity coverage of the typical Mittelstand company*'.

2.10.1 Credit Financing in Germany Pre-Crisis

The sole focus on one 'house bank' changed gradually due to the psychological effect of Basel II right after the start of the discussion (see hypothesis 1). According to a Pre-Basel II study (Deloitte & Touche, 2007), 26% of participants of the questionnaire-based survey answered that Basel II had a negative influence on the financing situation in general; 30% answered that the situation only marginally changed and 44% said it has not changed at all.

Reize (2007) found out that only 56% of the credit negotiations from SMEs to banks and state-owned savings banks were successful, with 37% of credit denials declined by the bank. In 2006 the ratio was only 31%. Due to enhanced demand this means that the credit backlog more than doubled from 2005 to 2006 from 170,000 to 360,000. In particular, (small) SMEs are affected, according to Plankensteiner and Zimmerman (2007): credit prolongations were reduced by four to six times as much for small companies with less than 10 million euros in revenues (6.0% to 9.0%) compared to companies with more than 50 million euros (1.6%).

Part of the explanation could lie in the fact that SMEs utilise their credit lines at banks and have to shop around (Reize, 2007) as the total quota of overall denials stayed stable at 27%. Therefore, bank guarantees play a major role: according to Schmidt and von Elkan (2006) Savings Banks and Cooperative

Banks account for 46% and 33% of the facilitating banks, with regard to debt guarantees. Only 10% of the corporations included in the study stated that the decline of state guarantee would not have an influence on the volume and timing of the respective investment. Based on a holistic economic model they estimated that the gross domestic product rose by 3.2 billion euros due to state guarantees.

However, there are other views on a pre-crisis basis. Based on empirical research in the UK, Vos *et al* (2007) tell the 'The happy story of small business financing': they question the widespread belief that companies are striving for growth (Gregory *et al*, 2005, for example). Instead they found that less than 10% of the UK SMEs were focusing on strong growth. On the contrary they were looking for sustainability and interconnection, therefore they question the 'classic rationale' to experience leverage in terms of profits or market share by use of 'external financing'. By 'not participating in the growth rat race' they experienced 'financial contentment'. Therefore, on the verge of Basel II in the US only 1.2% of the SMEs under review stated that financing was an issue beyond working capital financing.

2.10.2 Credit Financing in Germany on the verge of the Crisis

Based on the evaluation of large statistical data sets, consultant McMahon *et al* (2009) state that after the Lehmann default 'credit markets stopped functioning' and '*As a result, liquidity dried up in 2008, making it increasingly difficult for companies to finance their operations*, …'. The effect on SMEs can be evaluated on a high-level basis using the following analogy. Well in advance of the current financial crisis, Kroszner *et al* (2007, the article was accepted by the journal in 2005) provided the following evidence based on the evaluation of financial shocks of the last quarter in 38 countries: sectors with a high dependence on external finance show greater downsizing in times of a financial crisis in well developed financial systems than in more

'shallow' ones. Translated to Basel II and the current financial crisis this could lead to the following conclusion: Basel II can be regarded as a 'well developed financial system' and SMEs as 'a sector with high dependence on external finance', it can be concluded that the current financial crisis adds to the downturn of SMEs. This is in line with a survey from Stübiger and Steinert (2009) amongst private equity managers: 42% of the respondents believed that banks handle credits restrictively and even 49% as very restrictively, due to the financial crisis. For sure, the subprime crisis has a spillover effect on credit. However, there is controversy regarding what this effect on SMEs will look like. A recent survey (Abberger and Kunkel, 2008) amongst 2,700 German companies in spring 2008 showed that 92% stated that credit conditions remained unchanged for them despite the credit crisis. This is in line with empiric research amongst bank lending managers (Arons, 2008). In general, the credit volume to German companies increased from 1,204 billion euros in 2006 to 1,260 billion euros in 2007 and 1,333 billion euros in 2008 according to statistics of the German Federal Reserve (Handelsblatt, 2009).
The yearly empirical survey of the German Ifo Institut (2009) provided evidence that German SMEs companies are less affected than larger ones (see Figure 10: manufacturing companies, which are the stronghold of the German economy) regarding the credit crunch.

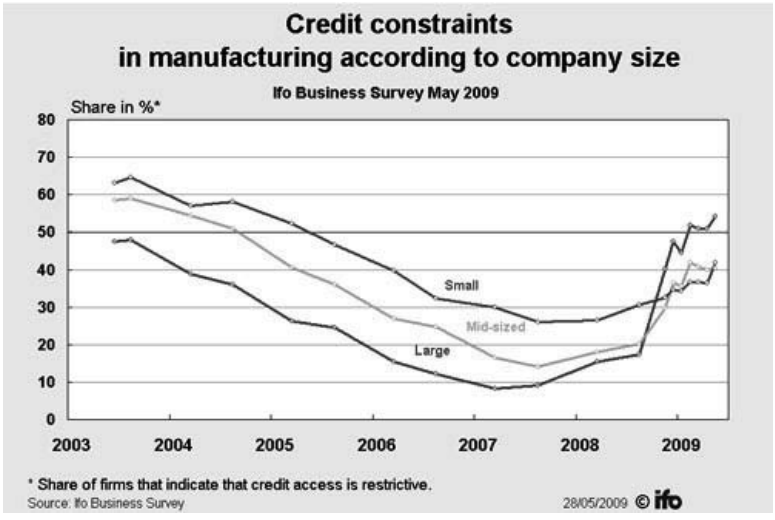


Figure 10 Credit constraints in manufacturing (IFO Institut, 2009:2)

On a model-based calculation, Bruche and González-Aguado (2010) provide further evidence in relation to the good pre-crisis situation. They argue that credit downturns start before recessions and last longer. Therefore the credit crunch must have been observable well before the crisis according to their model, which seems not to be the case. On the other hand, bank deposits at the European Central Bank (ECB, 2009) rose from 0.1 billion euros in September 2008 to 280.2 billion euros in November 2008 which is a clear indication of mistrust amongst banks which leads to a reduced credit supply. Therefore, credit financing has top priority according to a BVK survey amongst 46 funds (BVK, 2009a): the credit crunch and the ability to reduce credit are two of the top-five priorities of the portfolio companies in the current financial crisis.

In contrast to the studies mentioned already, Russell-Walling (2007) points out that SMEs will be most affected by the subprime crisis and the following credit crunch because they depend greatly on loans and their contracts normally allow for a quicker withdrawal of credit compared to larger corporations due to the lower bargaining power of an SME. As a remedy to these issues the federal government set-up an ‘economic stimulus package’. However, Fahrion (2009) believes – based on qualitative assessments from business associations – from a practitioners’ point of view, that, especially, SMEs with low creditworthiness will be excluded from the indemnification clause of 50% to 90%.

Even worse, on the verge of the financial crisis, even prior to the Lehman Brothers default on September 15th 2008 (Greenspan, 2008) the German, partly state-owned and dedicated ‘Mittelstands’-bank, IKB, would have gone bankrupt without support. Germany’s state bank KfW, which owns 37.8% of IKB had to support IKB with a rescue fund of 3.5 billion euros together with other banks (Hall, 2008).

However, based on US data, Carey (2002) believes that only 50% of the banks would recover, despite ‘equity infusions’, within one year of severe losses. And from a holistic perspective, Hasan *et al* (2009) point out, based

on cross-regional research, that economic growth is spurred more by the quality of services provided by the banks than the mere quantity of credit supply.

2.10.3 Private Equity Financing

As Germany is a laggard regarding private equity, the private equity development is explained followed by an overview about private equity options regarding (German) SMEs.

Private Equity Development

According to the BVK yearbook (BVK, 2009b), in 2008, investments in particular declined, and fundraising even dropped by two-third (see Figure 11).

	2008	**2007**
Capital under management	35.1 billion euros	31.9 billion euros
Fundraising	1.9 billion euros	5.7 billion euros
Investments in Germany	8.4 billion euros	10.6 billion euros
Portfolio	31.9 billion euros	27.1 billion euros
Portfolio companies	6.409	6.279

Figure 11 Private equity in Germany (derived from BVK, 2009b)

Before the subprime crisis private equity reached another record high on a worldwide basis, according to BVK statistics (Gürtler, 2007). In 2006 US-$ 400 billion were raised, approximately US-$ 700 billion were spent, and in total US-$ 1,600 billion were allocated to private equity funds for further investments off-market.

In Germany (Frommann, 2007a) the funds volume of German investment companies has nearly doubled since the year 2000 (15.6 billion euros). Frommann (2006a) ascribed this favourable trend in the pre-subprime years

to two reasons. Firstly, the capital and stock market climate recovered after the burst of the New Economy bubble (see above). Secondly, since 2003 the German government has made laws in favour of private equity, such as the 'Law to foster venture capital' (GFW, 2004) which has lowered the tax on 'carried interest'. Furthermore, von Berger *et al* (2007), for example, that recent contradictory negative effects of the Corporate Tax Reform 2008 (UStRG, 2007) are not compensated as the German government does not see a need to correct the taxation further in favour of private equity companies. It is only planned to make special regulations for venture capital and part of the earlier tax advantages have been withdrawn by the current government (Haarmann, 2007) with the law to modernise the framework of private equity (MoRaKG, 2008). According to the European Venture Capital Association (EVCA, 2008), Germany still 'remains ranked in the lower half of the European classification' in terms of tax and legal environment with regards to private equity. This is in line with other empirical studies: Ehrhart and Zimmermann (2007) introduced the so-called German Private Equity Barometer (GPEB) based on a probabilistic sample frame in terms of private equity and SMEs. The GPEB reached a record high with nearly 80% in 2006 (on a scale from -100% to 100% for 'very bad' to 'very good') amongst BVK members.

The Centre for Management Buy-out Research (CMBOR) tracked the European buy-out market between 1986 and 2006 (Wright *et al*, 2006): in relation to GDP, private equity in Germany gained momentum and ranked third in Europe with a portion of approximately three-quarters of a percent of buy-out volume in relation to GDP. According to Schäfer and Fisher (2008:2), the buy-out sector has a complementary function in order to '*activate credits and reduce financing limitations*' (see findings from the qualitative analysis in section 6 in relation to hypotheses 2.b and 3).

While private equity was on the rise on a global basis the subprime crisis (Russel-Walling, 2007) brought a sudden backdrop regarding larger scale transactions. In the first quarter of 2009 the effect of the Lehman default took

momentum: '*Q1 2009 numbers are down by a remarkable 39% and 86% in terms of volume and value on the corresponding period of last year*' as the leading, recurring transaction trend monitor Unquote (2009b:2) states – mainly due to the strong reduction in (large) buy-outs. In late 2006 managers of 59 private equity companies still expected a continuous positive effect in their outlook for 2007 (Lauszus *et al*, 2007).

Due to the subprime crisis the climate for LBOs became dramatically adverse after the end of 2007. The value of buy-outs in the last quarter of 2007 amounted to 21 billion euros which was the lowest recorded value for seven years (Unquote, 2008). Several research studies, such as BVK (2009c) or Capon (2008), Finance-Dealbank (2009) or Unquote (2009a) expect that financing of LBOs will become extremely difficult. Data from the German M&A association (BMA, 2009) show the effect: the number of transactions grew from 424 transactions in the first quarter of 2007 to 557 in the third quarter of 2008 (BMA, 2009) and plunged to 380 in the last quarter 2008: normally the last quarter is the highest throughout a year.

The German Private Equity Barometer (GPEB, 2009) by KfW and BVK reflects this trend as illustrated in Figure 12 (orange: whole market, blue: early stage, yellow: later stage / buy-out).

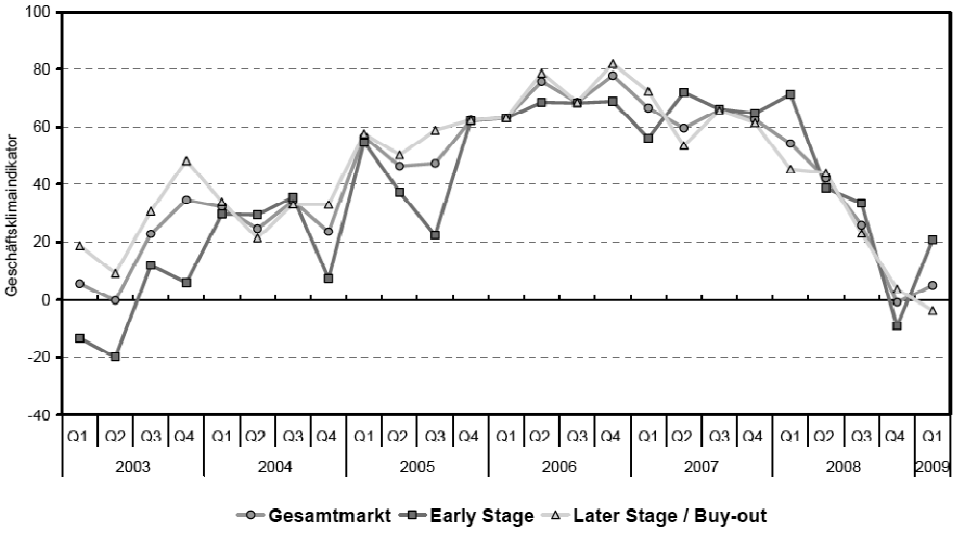


Figure 12 German Private Equity Barometer (2009), GPEB, 2009:1

According to EVCA (2009), fund raising has been mainly stable in 2008 but investments were reduced by 27%, especially in the large buy-out area (see Figure 13).

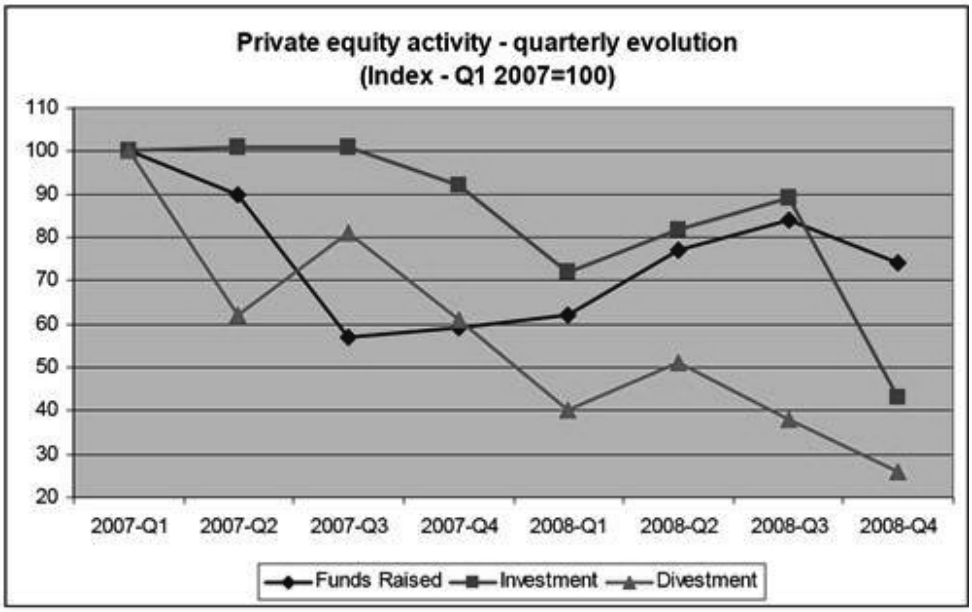


Figure 13 Private equity activity – quarterly evolution (EVCA, 2009:1)

This is in line with findings from BVK (2009c): 303 investments were made in Germany compared to 315 one year ago. Yet, large buy-outs plunged by nearly 75%. Transactions dropped sharply in Germany according to Ernst & Young (2009): the number of transactions declined from 98 (9.5 billion euros) in the first half year 2008 to 54 (2.8 billion) in the same period in 2009.

As a consequence, Meerkatt and Liechtenstein (2008) expect a major consolidation of the private equity market due to the financial crisis: up to 40% of all private equity companies could diminish before 2010 / 2011. In contrast, private equity related to SMEs seemed less affected (Unquote 2008, based on data of 16 European countries): the Small-cap Market (below 160 million euros) in 2007, comprised 87% of all deals recorded in the fourth quarter and grew by approximately 17% in terms of deals closed and volume. According to Barker (2009), only one third of the smaller Venture Capital firms (focusing on smaller companies) expect a reduction in investment

levels compared to more than 50% of major VCs (beyond 500 US-$ million in funds). Contrary to other European countries, 'Evergreen funds' (which continuously reinvest) and captives (funds which are financed by a mother company like an insurance concern) are predominant in Germany and comprise 51% of all funds (Frommann, 2006a). Only 49% of private equity funds are solely dependent on fund raising.

In an international context Germany played a minor role in the private equity arena in the past. According to the European Commission (2006), the UK takes the lead with 23.8 billion euros managed from the UK and 11.9 billion euros invested in the UK, followed by France with 7.3 (7.7) billion euros and Germany with 2.7 (5.5.) billion.

SME Financing in Germany via Private Equity

Whereas private equity was barely known in Germany in general in the 1990s it has been discussed as highly controversial in Germany since the famous quote of former State Minister Franz Müntefering in 2004 (SPD, 2005:29). He compared private equity corporate raiders with the biblical scenery of flocks of grasshoppers which destroyed whole harvests: '*We must help these companies, which focus on the sustainability of their companies and the interests of their employees, against irresponsible flocks of grasshoppers, which measure success on a quarterly basis, draw off a company's substance and let the company go bankrupt, when they have eaten them up*'. Several interviewees from the private equity sector (see qualitative analysis in sector 6) stated that this political statement had an effect other than that intended by the State Minister. Wealthy private persons became more aware of the high return chances of private equity and there was a 'leap' in fund inflow in the months after the famous quote in Germany. In addition, on a day-to-day business, private equity seems to become more and more accepted in the German Mittelstand and Basel II is one of the drivers behind this. According to an empirical survey by Nitschke and Kuper

(2007), approximately one quarter of participants (especially Mittelstand companies) already regard private equity as a financing option. A study by the Centre for Entrepreneurial and Financial Studies (CEFS) provides further evidence (Achleitner and Geidner, 2007): based on interviews with managers, about one third of 'carved-out' business units between 1998 and 2005 claim that the cooperation with private equity firms is more positive than with the former stakeholder. The biggest change was experienced by SMEs due to new investors in the area of controlling and corporate governance. 30.2% of the investment volume of 23.1 billion euros (Frommann, 2007b) was placed in 664 German SMEs. The SMEs therefore account for 97.7 % of all funded companies.

Regarding buy-outs the situation is similar: companies with less than 100 (15) million euro revenues comprise 27.7 % (13.1%) of the funds invested but 95.2% (80.4%) of the companies. The bulk of the buy-out volume (Frommann, 2007b) are still Management Buy-outs (henceforth MBOs, 72), followed by LBOs (12) and Managements Buy-Ins (henceforth MBIs, 8); MBOs and MBIs are per-definition SME-centric. A major role in the SME-related private equity sector in Germany is played by (federal) state owned investors, for example, the MGB (Mittelständische Beteiligungsgesell-schaften) in terms of mezzanine (Selbherr, 2007). According to BVK (2008), they invest up to 98.8% in companies with less than 50 million euros in revenues.

This trend correlates with the establishment of a new stock market segment called Entry Standard in 2005 (Deutsche Börse, 2007) which was designed for SMEs having lower requirements. Bormann (2007) therefore calls this segment 'capital market light'. According to a BVK survey (Frommann, 2006b) the majority of private equity companies regard this new segment as one of the prime reasons for increased IPO activity as a new exit channel for private equity companies.

However, other authors, such as Ehrhart and Zimmermann (2007) believe that this positive climate might not substitute bank credits. Buy-out capital is about three times as high as growth capital, which is more than three times as high as seed capital. That means that 'classic investment / growth financing', a prime focus of SMEs, is still below Pre-Basel II and Pre-New-Economy levels. The gap in seed financing is partially closed by Business Angels. In their 24th survey amongst business angels (BAND, 2008) the participating 21 respondents answered that 70% of their investments are seed- or first round investments.

2.10.4 SME Financing via Capital Markets

In its yearly IPO Watch, PriceWaterhouseCoopers (Troubridge, 2008) states that IPO activity stayed strong in 2007 on a pre-crisis basis: 838 IPOs (2006: 813) on a European basis and 279 in the US (2006: 242). In Germany, IPOs recovered on a smaller scale. After the IPO record during the prime of the New Economy bubble, with 175 on the Frankfurt Stock Exchange in the year 2000, the number of IPOs declined sharply to 1 in 2003 (Frommann, 2007a). During 2008 IPO activities reduced to 12 IPOs on the regulated market after 33 in 2007 (Deutsche Börse, 2008).

According to Frey and Kuhn (2007) the primary aim of an IPO is growth and innovation financing (70.3%). However, this might be primarily wishful thinking for (smaller) SMEs: several interviewees (see qualitative analysis in section 6) pointed out, in relation to hypotheses 2.b and 3, that an IPO is only an option for major SMEs.

The IPO recovery after the burst of the New Economy bubble is strongly linked to Private Equity (Frommann, 2007a): 52% of the IPOs between 2002 and mid 2007 were private equity-financed comprising primarily major corporations. This combination seems beneficial for all parties: private equity-

backed IPOs (33 buy-out samples) and especially venture capital-backed IPOs (105 venture capital samples) outperformed the stock market between 1990 and 2007 (Drathen, 2007) over a five year period. The same applies to LBOs in the UK. Based on 128 leveraged buy-out fund-backed IPOs, von Drathen and Flaviano (2007) revealed that these IPOs outperformed the market in relation to various return measures.

2.10.5 Alternative Forms of Financing

In line with the literature review, the means of alternative finance under review are: mezzanine, leasing, factoring and ABS (see hypotheses 2.b and 3): Brokamp *et al* (2004) argue, that acquisition of credits became too costly, and new shareholders are not yet welcomed on a broad basis in the German Mittelstand. Therefore, mezzanine, with its equity equivalent design options, is of growing importance. This is in line with other empirical research from Hollasch and Berg (2007), for example. According to an exemplary calculation by Hartl (2002), companies with a low equity ratio can reduce their credit rates by approximately 1% under the Basel II paradigm. However, others, like Bruch (2007), argue that smaller SMEs might be excluded from 'traditional mezzanine' due to their poorer ratings in relation to major corporations.

Other forms of alternative finance are leasing and factoring (Hartl, 2002): SFS (2006) evaluated in an empirical study that already one quarter of investment in plant and machinery is facilitated by leasing and reaches, therefore, nearly the level of the UK (28.7%) with its strong leasing tradition. The prime purpose of using leasing is it's 'liquidity generating facility' as rating agencies will be '*factored it back to the balance sheet*' (SFS, 2003:32). However, the authors of the survey argue that the new rating systems of banks under Basel II '*will not sufficiently differentiate to extrapolate the leasing effect*'. However, Schmit (2004) points out that physical securities are

only partly recognised under the New Accord which leads to higher regulatory capital for leasing portfolios.

Factoring has a similar off-the-balance-sheet liquidity effect. This is in line with Beck and Demirgüç-Kunt (2006) who pronounce the importance of factoring in their cross-country comparison of financial-factors which foster growth. However, factoring still has a poor image in Germany as corporations who use factoring are still regarded to be short on liquidity (SFS, 2003).
According to Hofmann *et al* (2007) banks will play a major role in facilitating ABS as it is a means of spreading risk regarding credits to the German Mittelstand. ABS means that a company can sell its receivables to a special purpose entity which offers instant liquidity. The bundle of receivables is refinanced via the capital market (Rosenfeld and Ziese, 2006).

Whereas Asset Backed Securities (ABS) have been an instrument for major corporations in the 1990s due to the huge structuring effort (BdB, 2005), private banks offer standardised solutions which are available from 5 million euros in credits onwards. Based on data from Moody's, the securitisation market in Germany (Sandvoß, 2007) grew between 2001 and 2006 from 14.2 billion euros to 66.7 billion euros (+370%). On a European basis, the German Mittelstand takes the lead with a market share of 30% of the European SME securitisation market; Germany accounted for 13% of the European ABS market in 2006 (Sandvoß, 2007). Schauerte (2006) regards the cheaper refinancing of banks in terms of bundled SME credits to be one of the main drivers behind ABS.
However, with Basel II 'securitisation exposures' (Rosenfeld and Ziese, 2006) a major spread concerning SA has been experienced regarding risk weights: they range from 20% to 1,250% (Suyter, 2008) depending on the external rating. Frese and Glüder (2006) point out that this is a major problem especially within Germany. They argue that syndicated credits, which were not developed as a kind of securitised product, can fall under this category.

2.11 QUO VADIS BASEL II IN THE LIGHT OF THE CURRENT FINANCIAL CRISIS

Federici and Caprioli (2009) point out that financial liberalisation is associated with a 'greater incident of crisis' in a more and more integrated world. Basel II can be regarded as a means of integration with a pro-cyclical effect. According to authors like Wahlström (2009) financial crises lead to changes in regulation. In terms of Basel II it was the outflow of the Asian Financial Crisis in the year 1997, to which Basel I did not have the right tools to prevent it. Will the current financial and economic crisis serve as a trigger for substantial changes within a 'Basel III'?

Weber and Darbellay (2008) point out that the current subprime crisis shows the weaknesses of the system. Prior to Basel II banks were used to keeping their loans on their own balance sheet, however, under the Basel II regime banks have incentives for offloading credit risk from their balance sheet and transferring it to other investors, as has occurred in the last decade of deregulation (Clerc, 2008). The result is known as 'subprime / financial crisis'. By using a real options approach Daglish (2009) points out that the rising default rate which leads to subprime defaults is a combination of rising interest rates and declining house prices.

It should not be forgotten, when talking about financial crises, to point out the relationship to the economic environment. According to the German Industry Association (BDI, 2009), recessions, which are accompanied by real estate and banking crises are more severe than 'normal' anti-cyclical crises: the estimation of the economic framework plunged from 0.1 in Q4 2008 to minus 43.7 in Q1 2009.

An in-depth discussion as to whether the extent of the financial crisis was foreseeable and whether a 'revised' Basel Accord could have prevented this is beyond the scope of this thesis – yet, some exemplary viewpoints are provided:

Stefanescu *et al* (2009:216) argue in an article (which was submitted in early 2008) that it is difficult for Basel II to calculate default rates for low default portfolios: '*Such low default portfolios typically include exposures to sovereigns, large corporations, or financial institutions such as banks (in developed nations) and insurance companies …*' Therefore they set up a model including systematic macroeconomic shocks and came to the conclusion that – based on data from Standard and Poor's between 1981 and 2007 – default probabilities for AAA and AA portfolios should be 0.4 and 1.0 which is far below the Basel II threshold of 3.0. Current history proves otherwise in the banking crisis. Yet, there had been in-time warnings: Lang *et al* (2008), for example, examined the effect of Basel II from a competitive point of view. Their article – which was accepted by the journal nearly two years prior to the default of Lehman Brothers – is concerned with the effect of Basel II on credit card lending in the US. While in normal economic times the effect will be marginal, they argue that Basel II banks will face, in times of a financial crisis, a significant competitive disadvantage. As a result US banks might not adopt the A-IRB approach or non-bank issuers might defer credit card business to a parent company.

Authors such as Alexander and Sheed (2008:2220) go even further: they believe that Basel II did not provide the right tools for this 'historic crisis' through a lack of imagination regarding banking stability, although Basel II requires that '*a bank must ensure that it has sufficient capital to ... cover the results of its stress testing*'.

They point out that traditional stress tests are often conducted outside the risk model like VaR, or they do not pay attention to the 'characteristics' of the market in terms of crises periods, '*namely, increased probability of further large movements, increased co-movement between markets, greater implied volatility and reduced liquidity*.'

Based on US panel data over a 10-year period, Pérignon and Smith (2010) add to this: they found out that most VaR calculations were based on

historical data with, according to their model, no suitable information regarding future volatility. Furthermore, default risk, which is based on a bank's trading book, had not yet been covered by value-at-risk models although the idea of on 'incremental risk charge' (henceforth IRC) has been around since 2005 (Pengelly, 2009).
Therefore several authors focus on lessons learned in terms of Basel II out of the financial crisis. According to McIllroy (2008), for example, securitisation should be limited to keep a certain amount of risk within a bank's own balance sheet, make inherent risk of bank products more transparent and reduce the pro-cyclical effect of Basel II.

Hall (2008) analysed capital arbitrage by off-the-balance-sheet balancing (conduits etc.) in light of the Northern Rock issue in the UK. As a remedy he suggests to reassess the model for setting regulatory capital charges.
As a consequence, several practitioners and academics even demand an interruption of Basel II, according to Beyer (2009:7), as SMEs in particular suffer most from the pro-cyclical effect of Basel II: he claims that Basel II manifests the current economic situation as the '*companies have the best rating who do not need a credit at all*'.
In light of the financial crisis the Basel Committee and European Commission thought about changing Basel II (Dallara, 2008) in late 2008 in order to overcome the weaknesses which emerged during the crisis. Nouy (2008) names for example: the improvement of stress testing especially in the area of chain reactions, the upgrading of risk management practices as liquidity plays a crucial role, and the improvements needed regarding Credit Rating Agencies (henceforth CRA) to assess the risk in structured products.

Several author's stress this issue of the inadequacy of current market risk prediction in times of crisis. Clark (2009) points out that historic data of 2007 were unable to predict the 'losses that would occur in stressed markets'. Based on empirical data Campbell (2009) showed that value-at-risk is 'risky'

in times of crisis: almost every category experienced strong increases in many banks.

The Basel Committee reacted by issuing consultative papers in January 2009 (Campbell, 2009) introducing the IRC 'designed to tighten up the management of risk in bank trading books' (Davidson, 2009) and it added a 'stressed VAR' (SVAR, Pengelly, 2009). In March 2009 the Basel Committee confirmed introduction of rules to build-up capital buffers to be used in downturns (Tattersall, 2009), another consultative document was published in April 2009 (BCBS, 2009b). In the past, there had been no differentiation between 'standard ABS' and the so-called 'collateralised debt obligations (henceforth CDO) which were part of the issues initiating the crisis.

The enhancements should come into effect at the end of 2009 (BCBS, 2009c) in the US the start should be in 2010. As discussed, the enhancements circle a better and more comprehensive risk management, especially in terms of securitisation risk. Other enhancements included: in Pillar 1, higher risk weights were introduced, in Pillar II a special focus was laid on off-balance-sheet exposures and securitisation, and in Pillar III securitisation in the trading book was one of the key features.

This is in line with authors such as Himino (2009) who calls for a 'counter-cyclical Basel II' so that in good times capital buffers are built up which melt off in bad times. However, he proposes a 'regulator independent deno-minator' based on macro indicators. Furthermore, there are already voices from the US, like the FDIC chairman, who believe that a 'more granular Basel I' would be favourable in comparison to Basel II (Madigan, 2009).

From a holistic point of view and under the impression of the financial crises authors like Breuer *et al* (2010) opt for an integrated 'compound' risk calculation approach in terms of credit and market risk, rather than three separate ones (for credit, market and operational risk). Based on a simulation model they argue that this could lead to an underestimation as well as to an overestimation of risk.

Besides the current crisis, it should not be forgotten that there is still a road to go – and not only for SMEs to adept to a risk based Basel regime: Wahlström (2009) carried out 25 in-depth interviews with managers from Swedish banks. He found that there is a mismatch in perception between managers who operate in the risk management department and operational staff. Whereas the first group points out the positive effects, like the confirmation of current banking practice and the refinement of internal systems and risk control mechanisms, the second group criticises Basel II for the lack of applicability of the models in practice despite an 'overly' high usage of resources.

3 LITERATURE REVIEW

As discussed in the introductory section, there is a research gap regarding what the impact of Basel II on SMEs looks like. Therefore the author uses the comparative method (Peters, 1998) 'Most Different Systems' to structure the literature review in line with certain generic 'discriminating factors', with regards to Basel II in an international context, like for example 'banking economy structure' (bank-based economies vs. financial market-based economies).

Within the respective paragraphs, the findings of the literature review were linked to the research question and hypotheses tested, as stated in the introductory section 1.1. Based on this methodology the findings provide the following evidence: from a Pre-Basel II perspective, no consistent effect of Basel II on SMEs with regard to the various types of companies within a country exists. On the other hand, there is little evidence either that the effects of Basel II, regarding the generic 'discriminating factors' under review, are consistent across countries. Therefore, further research is needed to see whether the effect in Germany is consistent, from a Post-Basel II perspective, regarding conditions which trigger certain mechanisms – from a scientific realism perspective, as described in 4.2.3. In combination with the back-ground-gathering phase, the findings from the literature review in this section provide the basis for defining the research design (see section 4, based on the author's philosophical stance) and the three initial hypotheses which were tested in the empirical quantitative and qualitative sections 5 and 6.

As discussed in the introductory section there is no homogeneous generic pattern regarding the effect of Basel II on SME financing. Based on different country specific sample frames on the one hand, and different '*discriminating factors*', like 'financing focus', on the other hand, researchers come to different conclusions about whether SME financing will become 'easier /

cheaper' or 'more difficult / dearer' due to Basel II. De Jong *et al* (2008), for example, point out that the leverage of corporations depends directly and also indirectly on country specific factors, like the maturity of bond markets or stock markets.

Therefore, it is of interest to research these two categories mentioned above in more depth to evaluate whether there are consistent patterns within each of the following two determinants:

1. It is of interest whether the effect of Basel II on SMEs (which is in general not consistent) might be consistent within a country as a kind of 'universal principle' (regardless of the specific factor approach used).
2. Likewise it is of interest whether the characteristic is consistent regarding a specific 'discriminating factor cluster' (regardless of the differences in the economies in other factors). For example, if 'financing focus' is used as 'discriminating factor' a country could be either a (more) 'financial market-based economy' or a (more) 'bank-based economy' regardless of other factors. 'Financial market-based economy' and 'bank-based economy' will build clusters regarding the discriminating factor 'financing focus'.

A comparative method called '*Universalising Comparison*' is used in order to establish that every instance of a phenomenon follows the same rule (Espíndola, 2007). This is undertaken by using a Most Different Systems (MDS) approach which is based on Mill's '*Method of Difference*' of the English philosopher John Stuart Mill (1806-1873). Within the MDS approach SMEs which belong to a particular country or to a specific cross-nation 'discriminating factor' are taken into account. The aim is to seek explaining phenomena (here: effect on Basel II) which they have in common (Espíndola, 2007). The principle is: most different, similar outcomes (Peters, 1998).

In the case of the first determinant of a coherent country specific behaviour the difference lies in the different 'methodologies used / factors under review'

in the respective research studies. In case of the second determinant of a coherent ‘discriminating factor cluster’ the difference lies in the fact that SMEs belong to various countries which are different in many other factors, like size of economy or industry structure.

Based on these clusters, the effects on SMEs, derived from the literature review, were assigned to the country on which the respective research is based. The effect on SME financing will be clustered accordingly in a two-fold way: the effect of Basel II is (a bit / rather) negative for SMEs (i.e. ‘credits will become dearer / more difficult for SMEs’ or the effect is (a bit / rather) positive, that means ‘credits will become cheaper / easier for SMEs’. This clustering of the Basel II effect from primarily a Pre-Basel II perspective (as the literature research was carried out prior to Basel II), ensures a structure of the literature review section in line with the research question which is: ‘to explore the effect of Basel II on SMEs’. In addition, the respective research papers were linked to the research hypotheses.

The results of the comparative research will be displayed as a four square matrix for every factor under review with the instances of each factor on one axis and the effect on SMEs on the other axis. Patterns like the one displayed in Figure 14 will provide evidence that there is a consistent pattern regarding a discriminating factor. If patterns like the one in Figure 15 emerge, this will ‘falsify’ (Smith, 1998:105-106) in the positivist view, the existence of a consistent pattern regarding the respective discriminating factor. As discussed in the introduction a positivist view is prevalent in financial research according to Ardalan (2003).

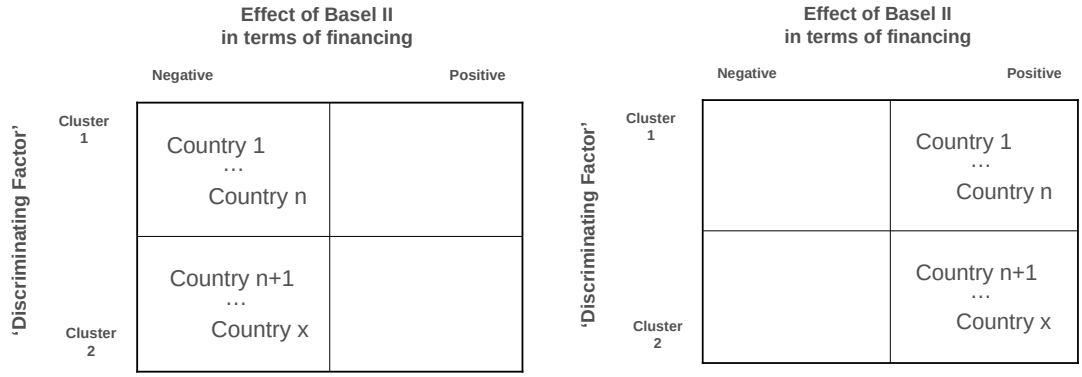


Figure 14 Supporting evidence regarding the existence of a consistent pattern regarding a 'discriminating factor' (sample figures)

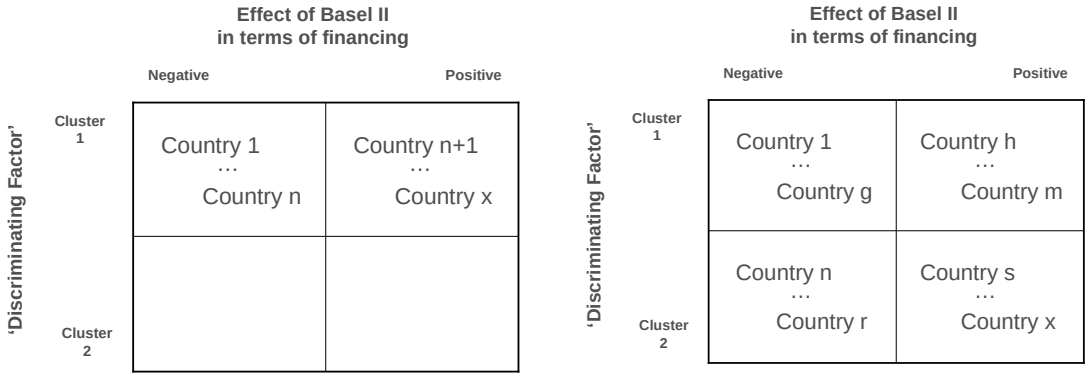


Figure 15 Falsifying the existence of a consistent pattern regarding a 'discriminating factor' (sample figures)

Regarding the discriminating factor 'financing focus', for example, research papers estimate that for the financial market-based economy, e.g. The Netherlands, credit for SMEs will become cheaper, whereas for other financial market-based economies like the US or UK credit will become dearer. Therefore, the behaviour regarding the discriminating factor 'financing focus' is not unequivocal and there is no consistent pattern regarding the discriminating factor 'financing focus'. Empirical research from the US, Australia and especially European countries is taken into account. In addition, the research designs are explained which provides further insights

regarding the choice of a valid research design for the author's own primary research (see section 4).

3.1 SEGMENTATION CONSIDERATIONS REGARDING MDS ANALYSIS ON BASEL II

The MDS analysis is clustered in line with the 'discriminating factors' selected, as described below. In total 42 main research papers and several tens of supporting research studies have been critically reviewed. In each sub section, one factor will be analysed based on several studies under review, knowing that this can give only a preliminary picture, as Hudson (2003) points out: he believes that banks will be consumed for a few more years in order to interpret the regulation. In addition, more than 40 opt-out clauses will make a unified comparison difficult and inconsistencies will arise regarding the nation-specific application when a multinational bank operates loans abroad.

Within the respective sections the literature review findings were linked to the research hypotheses. These were derived from the research objectives / question. Another prerequisite is that the factor specific researches under review have respective internal validity (Robson, 2002:100-107) which is the case to a major extent. Yet, a detailed management critique of each article is beyond the scope of this thesis and can be found partly, for example, in VanHoose (2007) or Schmid (2007). Furthermore, some findings may be time dependent as Basel II underwent several changes until its final application. As most research is focusing on Europe, the US and Australia these regions build the foundation for this literature research.

Based on the literature research the following discriminating factors emerged as being suitable for the chosen MDS approach:

> Financing focus: bank-based economies vs. financial-based economies
> Good protection of creditor rights / forbearance
> Effect on economy structure
> Effect on banking structure / sophistication
> Basel II intrinsic approaches

The section starts with a summary of the literature review findings in order to provide a comprehensive picture. Each discriminating factor is then evaluated in detail in the consecutive sub-sections.

3.2 SUMMARY FINDINGS FROM THE LITERATURE REVIEW

The aim of the literature review was to put Basel II research in perspective with the research objective / question: 'to establish what effect Basel II has had on corporate financing of SMEs in Germany from an initial Post-Basel II perspective and consider how SMEs can cope best with the changes imposed'. The findings of the MDS-based literature review (see sections 3.3 to 3.7) provide evidence that the Basel II effect is not generally consistent over all countries and all 'discriminating factors' from a Pre-Basel II point of view. Therefore, more detailed research is needed which is provided in the empirical sections 5 and 6.

3.2.1 Inconsistent Country-specific Effect

The various researches on a country level show a certain pattern regarding what the effect of Basel II looks like (see research question / objective). However, the picture is ambiguous. Figure 16 provides a comprehensive overview of the findings from the various studies under review on an aggregated country level.

Effect of Basel II in terms of financing

Negative	Indifferent	Positive
Austria[8] Belgium[2+14] ***France***[9, 10, 2+14] **Finland**[36] Germany[1,3,7,9,10,20,22,23,24,25,26,27,29,30,33, 41] **Greece**[8, 36] ***Italy***[1, 9, 2+14, 27] *Ireland*[2+14] ***Portugal***[8, 2+14, 36] Spain[9, 2+14] The Netherlands[2+14] UK[4,9]	Belgium[36] **Denmark**[36] Germany[4,8,21,34,37] **Ireland**[36] **Luxembourg**[36] Norway[42] Spain[15, 36] Sweden[36] The Netherlands[8,36] US[28]	Austria[36] ***Belgium***[2+38, 8,11+32] ***France***[2+38, 8, 36] Germany[5,16,17,18+19+40,11+24+32,36,39] Ireland[2+38] ***Italy***[2+38, 11, 36] ***Portugal***[2+38, 8] Norway[12] **Sweden**[13] Spain[2+38, 8] **The Netherlands**[2,2+38,5,27, 35] **UK**[2, 5, 8, 27, 36] **US**[2, 5, 11, 27, 11+31+32, 6]

1) Garside & Bech, 2) Giannetti, 3) Heid, 4) Cowley, 5) Buch, 6) Rubin & Nayda 7) Bartels, 8) Barfield-b, 9) Cartwright & Sarraf 10) Dietsch & Petey, 11) Altman & Sabato, 12) Larsen & Bjerkeland, 13) Jacobson *et al*, 14) Kopecky & VanHoose, 15) Saurina & Trucharte, 16) Hedtstück, 17) Hollasch & Berg, 18) Schäfer-a *et al*, 19) Schäfer-b *et al*, 20) Schalast & Barten, 21) Ehrhardt & Zimmermann, 22) Bruch, 23) Hartl, 24) Ackermann, 25) BWI, 26) Suyter, 27) Carey *et al*, 28) Berger, 29) SFS, 30) Plankensteiner & Zimmermann, 31) Cole, 32) Degryse & Ongena, 33) Sandvoß, 34) BDB, 35) Cumming & Johan, 36) Barfield-a, 37) Golland & Gehlhaar, 38) Demirgüç-Kunt & Maksimovic, 39) Bräunig & Lob, 40) Nitschke & Kuper, 41) Ahrweiler *et al*, 42) Nordal

Figure 16 Basel II effect country synthesis chart

However, there seems to be certain patterns showing that credit will become dearer in Austria, Finland and Greece. They will become cheaper in Belgium, Ireland, the Netherlands, Norway, Sweden, Spain, the UK and the US. With regard to Germany, Denmark, Luxembourg, France, Italy and Portugal the opinions of the effect are even more diverging.

3.2.2 Inconsistent ‘Discriminating Factor’-specific Effect of Basel II Regarding SMEs

With the inconsistency in mind, a second research focus was established, to see whether there are overriding ‘discriminating factors’ under which SMEs show a consistent behaviour, regardless of other factors in the economy. However, no consistent pattern regarding the effect of Basel II (see research question / objective) emerged for any of the ‘discriminating factors’ under review in the last section, as follows.

Summary: Financing Focus

Based on findings from Bruch (2007), Carey *et al* (2003), Cowley (2002), Cumming and Johan (2007), Ehrhardt and Zimmermann (2007), Garside and Bech (2003), Giannetti (2003), Golland and Gehlhaar (2002), Heid (2007), Hedtstück (2007), Hollasch and Berg (2007), Nitschke and Kuper (2007), Schäfer *et al* (2007), and SFS (2003), SMEs in banking-based economies like Italy experience higher credit costs. In finance market-based economies such as the Netherlands credit will become cheaper, as will be the case in the UK. However, other influences might dilute this effect and lead to opposite conclusions.

Summary: Protection of Creditor Rights

The author derives from the findings of Giannetti (2003), Demirgüç-Kunt and Maksimovic (2002) and Buch (2003) that credits will become cheaper as Basel II can be regarded as a means for stronger regulation, whether the respective country had a high protection of creditor rights like Germany, the UK or the United States or a low protection e.g. Belgium, France, Italy, Portugal, the Netherlands or Spain. On the other hand, Kopecky (2006) and VanHoose (2006) argue that credit will become cheaper for corporations which rank low with regard to regulation (see Giannetti's, 2003).

Summary: Effect of Economic Structure

Based on findings related to the economic structure from Hartl (2002), Bartels (2002) and Ackermann (2003), German SMEs will experience a more difficult financing situation. Yet, with regard to findings from Barfield (2004b) and BdB (2005) the effect will be nullified. Regarding other countries, the findings from the European Commission survey (Barfield, 2004b) are mixed: SMEs in countries like Austria will face higher credit costs. Other countries like France will face lower rates (Barfield, 2004b).

Summary: Effect of Banking Structure / Sophistication

On a macro-economic level, Barfield (2004b) points out that operational risk will offset the other risk factors, like credit risk, and will lower the capital requirements for SMEs in most European countries to a greater extent (Belgium, France, Portugal and UK). RC will nearly stay the same in Germany and France and will actually become higher in Austria and Greece. Barfield (2004a and 2004b) as well as Cartwright and Sarraf (2005) studied the effect of banking structure on credit prices in relation to Basel II. Whereas contradictive findings are derived for the major economies France, Germany and Italy, higher credit rates are expected for Finland, Greece, Portugal and Spain. A reduction is predicted for Austria and the UK, whereas the effect is indifferent for Belgium, Denmark, Ireland, Luxembourg, the Netherlands, Spain and Sweden. Combining research of Altman and Sabato (2005), Degryse and Ongena (2005) with Cole (1998) and Rubin and Nayda (2008a) for the US, and Ackermann (2003) for Germany induces that a reduction of regulatory capital will be the result. On the contrary, Berger (2004) does not expect a major change for US SMEs and Sandvoß (2007) expects an increase for Germany.

Summary: Basel II Intrinsic Approaches

BWI (2002), Dietsch and Petey (2004), Altman and Sabato (2005), Larsen and Bjerkeland (2005), Jacobson *et al* (2005), Plankensteiner and Zimmermann (2008), and Saurina and Trucharte (2004) examined the effect based on the determinants of Basel II – partly using the Basel II assumption, partly questioning them. Regarding Germany and France they expect an increase in capital requirement, whereas in Italy, Norway, Sweden and the UK the opposite should be the case.

From a German perspective, several authors reflect on the Mittelstands-package built into Basel II in 2003 and 2004: Bräunig and Lob (2007) and Suyter (2008) believe in a relief for SMEs, while Ahrweiler *et al* (2007) come to a different conclusion.

3.2.3 Inconsistent German View on the Effect of Basel II regarding SMEs

In order to set the findings of the author's research in Germany into perspective, the research papers – which are either based solely on Germany or provide valuable insights as Germany is indirectly referred to – are grouped in line with Creswell's (2003:3-24) classification of research approaches: quantitative and qualitative as well as mixed-method approaches. As the mainstream of financial research follows the positivists' view (Ardalan, 2003), the nomothetic quantitative approach prevails.

Setting the various research papers under review into perspective provides further evidence that there is no consistent picture regarding the author's research question / objective (effect of Basel II on SMEs in general in Germany) from a Pre-Basel II perspective.

However, there are two tendencies from a Pre-Basel II perspective originating in a deterioration of the 'Hausbank' principle due to Basel II: credits will become dearer, furthermore, there is a certain indication that SMEs will try to gain more financial flexibility by adapting to alternative forms of finance. Yet, there is evidence that the house bank principle will not completely diminish within a short period of time (see quantitative and qualitative analysis in sections 5 and 6). The first hypothesis ('deterioration of the house bank principle') is therefore directly derived from literature research. The same applies for the other two hypotheses which were established to answer the research question, as will be explained in detail in the following sections 3.3 to 3.7.

The comprehensive findings of German related Basel II research are displayed in Figure 17.

Effect of Basel II in terms of financing

Research Approach Used	Negative	Indifferent	Positive
Nomothetic research	Ahrweiler *et al* (2007) Bruch (2007) BWI (2002) Carey *et al* (1998) Cartwright & Sarraf (05) Dietsch & Petey (2004) Garside & Bech (2003) Hartl (2002) Heid (2007) Plankensteiner & Zimmermann (2008 Sandvoß (2007) Schalast & Barten (2008) Suyter (2008)	Barfield (2004b) BDB (2005) Cowley (2002) Ehrhardt & Zimmermann (2007) Golland & Gehlhaar (2002)	Altman & Sabato based (2005) Barfield (2004a) Buch (2001) Hedtstück (2007) Hollasch & Berg (2007) Nitschke & Kuper (2007) Schäfer *et al* (2004) Schäfer *et al* (2007)
Ideographic research	Ackermann (2003) Bartels (2002) SFS (2003)		Bräunig & Lob (2007)

Figure 17 Summarized effect of Basel II research related to Germany

3.2.4 Research Design Evaluation

The evaluation of research design elements is based on Creswell (2003), Robson, (2002) and Saunders *et al* (2007). It contains the following elements (see Figure 18): research question, research philosophy, research type, research approach, research strategy, unit of analysis, data collection methods, research question (purpose / objective), sampling strategy and data analysis methods (statistics used).

The following paragraphs provide a summary of the research designs used in the 42 main studies under review.

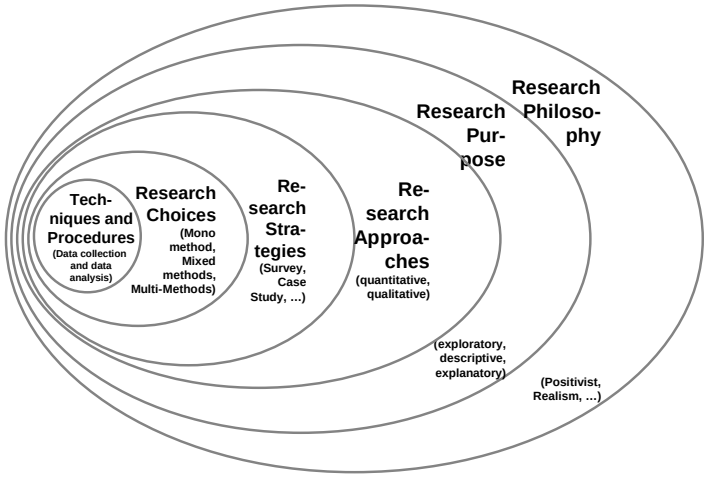


Figure 18 Research design elements based on Creswell (2003), Robson, (2002) and Saunders *et al* (2007)

> Research Philosophy

Although it is not explicitly mentioned in any case, nearly all authors took a positivist stance (88%), only 12% of the research papers followed a different philosophy, especially a realist stance.

> Research Type

Nearly all papers under review were written before Basel II was set in national law: 76% of these research papers were based on an explanatory research type; 19% were partly exploratory in nature, while 5% were primarily descriptive.

> Research Approach (Methodology)

The usage of quantitative, deductive methodologies predominated (83%) – only 17% of the research papers were largely qualitative in nature. A few contained certain qualitative elements in a kind of sequential design.

> Research Strategy

The predominant method was a quasi-experimental design in order to come up with new models. Model building dominated (38%), this was followed by surveys (21%), then hypothesis testing (partly linked to upfront modelling, 21%), case studies (14%), and then research with alignments to grounded research (5%).

> Research Choice

88% of the studies under review were mono-method, 10% and 2% comprised mixed-method and multi-method.

> Data Collection Methods

Modelling and related hypotheses testing was based on secondary data. 76% of the research studies relied almost completely on secondary data. Primary data collection was primarily carried out by means of non-participating observations (postal or online questionnaires, 19%). Semi-structured interviews were used by 5%.

> Sampling

The research papers under review focused on public databases. In Germany Creditreform, KfW and the BVK dominated. The advantage is that due to the large extent of data a statistical significance can be assumed (see discussion in section 4.1). In general, 61% of the research studies which made statements about their sampling approach can be regarded as (nearly) probabilistic, 39% used a purposive sample.

> Display of Results

The results were, in nearly all instances of the quantitative 'statistical' studies, presented primarily by the use of descriptive statistics, such as pie charts or bar charts (58%). 42% of the researchers under review extended the statistics with more advanced statistics, like regression analysis.

This evaluation provides valuable insights in terms of defining a research design which is suitable in terms of answering the research question, as will be explained in section 4. Based on Creswell (2003), Robson (2003) and Saunders *et al* (2007), Table 1 provides a detailed description of region, research question (purpose / objective), research philosophy, research purpose of inquiry, research approach (methodology), research strategy, research choice, unit of analysis, techniques and procedures regarding data collection and analysis, sampling strategy, results, as well as expected reactions of the 42 main studies under review in this literature section.

Author, Date	Region	Research Question (Purpose / Objective)	Research Philo-sophy	Research Purpose of Inquiry	Research Approach (Method-ology)	Research Strategy	Research Choice	Unit of Analysis	Techni-ques & Proce-dures (Data Coll. Methods)	Sampling	Techni-ques & Pro-cedures (Data Analysis)	Results	Expected Reaction
Ackermann (2003)	Germany	How should banks react due to Basel II?	Realism	Explanatory	Qualitative, inductive	Alignments from grounded theory	Mono method	SMEs	Secondary data	Literature research	---	Worse for SMEs as a) no cross-subsidisation of poor / good credits and b) low equity ratio of SMEs	SMEs should enhance their equity ratios
Ahnweiler *et al* (2007)	Germany	To evaluate the effect of Basel II on SMEs from a Pre-Basel II point of view	Positivism	Exploratory	Quantitative, deductive	Initial hypothesis testing	Mono method	German SMEs	Secondary data	Literature review (meta-study)	Only descriptive charts	SMEs will be negatively affected due to low equity ratio (pro-cyclical effect), enhanced securitisation and transparency demands	Banks will increase security demands on SMEs
Altman and Sabato (2005)	Italy, US, Australia	To evaluate the effect of Basel II on bank capital requirements for SMEs	Positivism	Explanatory	Quantitative, deductive	Modelling (break even model)	Mono method	SMEs within the respective country, specific definitions	Secondary data	Purposive sampling	Descriptive statistics in the break even analysis	RC will be lowered for SMEs when they are considered to be retail customers or by using the A-IRB approach on a pooled basis	At least 20% of SME port-folios should be placed in the retail class
Barfield (2004a)	EU	To evaluate the effect of Basel II on banking sector, SMEs and M&A	Positivism	Exploratory, partly explanatory	Quantitative, deductive	Modelling	Mono method	SMEs	Secondary data	Banks; SME: focus on qualitative generalised samples	Only descriptive charts	In Germany: intention to repair margins on SMEs due to high degree of defaults, non-profit oriented cooper-ative banks and RoE < RoC	Benefits will be partly kept (e.g. Finland), partly passed on (e.g. Italy)
Barfield (2004b)	EU	To evaluate the effect of Basel II on banking sector, SMEs and M&A	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	SMEs	Secondary data	Banks; SME: focus on qualitative generalised samples	Only descriptive charts	Overall positive, but differentiated according to countries	Benefits will be partly kept (e.g. Austria), partly passed on (e.g. UK)
Bartels (2002)	Germany, EU	Basel II and the survival of the SME: are lenders and borrowers ready to comply with Basel II?	Realism	Explorative	Qualitative, inductive	Alignments with grounded theory	Mono method	SME: nucleus of SME, entrepre-neurial owned	Secondary data	SMEs	---	Basel II as a risk factor: in Germany due to low capital base and lacking familiarity with rating	SME credits will become far more difficult
BDB (2005)	Germany	What effect will Basel II have on SME credit rates?	Positivism	Explanatory	Qualitative, inductive	Modelling	Mono method	SME	Secondary data	Literature research	Only descriptive charts	Basel II will have almost no effect on SMEs, as credit rates account for only 2% of total cost structure	No major change

Author, Date	Region	Research Question (Purpose / Objective)	Research Philo-sophy	Research Purpose of Inquiry	Research Approach (Metho-dology)	Research Strategy	Research Choice	Unit of Analysis	Techni-ques & Proce-dures (Data Coll. Methods)	Sampling	Techni-ques & Pro-cedures (Data Analysis)	Results	Expected Reaction
Berger (2004)	US	To examine the competitive effect of Basel-II on SME financing	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	Banks	Secondary data	Call report and the May 2002 Survey of Terms of Bank Lending to Businesses (STBL) purposive sample	Descriptive statistics, analysis of difference, analysis of regression	The competitive situation might be only slightly affected as the A-IRB advantages of a large institute might not outweigh the 'relationship lending' advantage of smaller banks	In the long run large A-IRB banks might enforce competition in favour of SMEs
Bräunig and Lob (2007)	Germany	To provide an initial assess-ment on the Basel II effect on SMEs	Realism	Exploratory	Qualitative, deductive	Initial hypothesis testing	Mono method	German SMEs	Secondary data	Literature review	---	The recently introduced 'SME package' will be favourable for SMEs	Due to intense banking competition SMEs will benefit
Bruch (2007)	Germany	To evaluate the access to mezzanine in Germany	Positivism	Exploratory	Quantitative, deductive	Case study like	Mono method	German companies, in particular	Secondary data	Purposive sample of companies and mezzanine funds	Only descriptive statistics	SMEs will be mainly excluded from classic mezzanine	'Special mezzanine' will become stronger
Buch (2003)	Europe, Japan, USA	Information or regulation: what drives the international activities of commercial banks?	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	System	Secondary data	Data from Bank for International Settlements on cross-country lending	Descriptive statistics, regression analysis	Regulation is relatively more important than information cost for Germany, USA, UK, The Netherlands, compared to France, Italy, Japan, Spain -> enter countries with low regulatory barriers	Costs are main factor; Basel II has positive effect on intra-EU lending
BWI (2002)	Germany	What impact will Basel-II have on the steel industry in Germany?	Positivism	Explanatory	Qualitative, based on quantitative, deductive elements	Case study like	Mixed methods	SME, steel sector	Secondary data	Literature review, Creditreform, Banks	---	SME: access to capital becomes more difficult but because of low equity ratio, poor communication, concentration on loans	Focus will be on alternative financing
Carey *et al* (1998)	US	Establish the existence of specialisation in private-market corporate lending	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	Financiers	Secondary data	Data from Federal Reserve statistics and Dealscan database	Descriptive statistics, regression analysis	They provided evidence - related to US companies - that there is a difference in how financial players cope with observable risk: finance companies tend to finance lenders with higher observable risk and leverage	In the light of Basel II: the regulation can be regarded as a means to make risk more transparent

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Cartwright and Sarraf (2005)	Amongst others: UK, Germany, France, Spain and Italy	To evaluate how regulatory investments can be leveraged with portfolio risk-based pricing	Positivism	Exploratory	Quantitative, deductive	Case study like	Multi-method	Corporations	Primary data (case study research) and secondary data	Purposive sample	Reference to descrip-tive and correlation analysis	Banks which adopt a risk based pricing will increase lending margins by sustaining or even growing market share	Banks will adopt risk based pricing while investing in Basel II
Cole (1998)	US	To examine the effect of pre-existing relationships between a firm and a credit supplier on extending a credit	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	SMEs	Secondary data	SMEs in general	Regression analysis	Evidence than an existing relationship helps to extend a credit due to the enhanced private information: as this information is of less value when the creditor uses multiple sources the probability of extending a credit is reduced in such a case	Further area of research: effect of firm-lender relationship on loan rates
Cowley (2002)	Europe, especially Germany and UK	What will be the effect of Basel II on PE firms (and banks and SMEs)?	Positivism	Explanatory	Mainly quantitative, deductive, partly qualitative, inductive	Case Study like	Mixed methods	Private Equity; SME with less than 100 employees	Secondary data	SMEs in general	---	Capital requirements for private equity will rise -> Germany is less affected as SMEs are credit financed rather than equity financed	Worse as 81% of private equity goes to SMEs with less than 100 employees
Cumming and Johan (2007)	The Nether-lands	To illustrate the factors that motivate institutional investors to allocate capital to private equity	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	Dutch investors	Secondary data	Purposive sample	Descriptive statistics, correlations analysis of difference, analysis of regression	Regulatory harmonisation will facilitate investment in private equity, as well as international investment in private equity	Basel II will have an impact which is higher than IFRS but lower than FTK
Degryse and Ongena (2005)	Belgium	To evaluate the effect on loan conditions of geographical distance between firms, the lending bank, and other banks in the vicinity	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	SMEs in Belgium, Belgium banks	Secondary data were used for the hypothesis testing	Credit information from 15,000 bank credits to Belgian SMEs between 1975 and 1997	Descriptive statistics, regression analysis	Loan rates decrease with the distance between the firm and the lending bank and increase with the distance between the firm and competing banks	To call 'the death of distance' is premature

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Demirgüç-Kunt and Maksi-movic (2002)	40 countries	To investigate whether firms' access to exter-nal financing to fund growth dif-fers in financial market based and bank-based financial systems	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	Corporations in 40 countries	Secondary data were used for the hypothesis testing	Financial statements for the largest publicly traded manufacturing firms in 40 countries	Descriptive statistics, regression analysis	The development of a country's legal system predicts access to external finance, and stock markets and the banking system affect access to external finance differently	Change in financial framework is needed in order to provide more access to credit alternatives
Dietsch and Petey (2004)	Germany, France	Should SME exposures be treated as retail or corporate exposures?	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	SME, 40 million Euro turnover, 3 classes	Secondary data	Probabilistic, data derived from financial information provided by Coface and Creditreform	Only descriptive statistics (mean, standard deviation), correlations	Basel II imposes too high capital charges for less risky SMEs	Trend to more refined models
Ehrhardt and Zim-mermann (2007)	Germany	To evaluate the climate and investment activities in the German private equity market	Positivism	Explanatory	Quantitative, deductive	Combination of secondary data with a time series based questionnaire based survey	Mono method	German private equity companies with focus on SMEs	Primary data (based on questionnai res) and secondary data	Probabilistic sampling	Only descriptive statistics	The GPEB index reached a record high in 2006	The better the assessment of the investment climate, the higher the probability to invest
Garside and Bech (2003)	Europe	Effect of Basel II in Europe	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	---	Secondary data	Purposive sample	Only descriptive analysis	Capital requirements higher for SMEs as PD decreases with size; in Germany in general (see sovereigns) credits will become dearer	Trend to A-IRB approach (as capital requirement will become lower)
Giannetti (2003)	Belgium, France, Ireland, Italy, The Nether-lands, Portugal, Spain, UK	To examine how firm characte-ristics, legal regulations and financial developments affect corporate finance decisions	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	150,000 non-financial companies (revenue > 10m Euro, > 150 employees)	Secondary data	(Near) probabilistic sample: Amadeus database Bureau van Dijk, as well as LLSV and RZ as well as PWC tax information	Descriptive analysis, analysis of correlation, analysis of difference (time series)	Amongst others: protection of creditor rights is important for ensuring long-term debt for firms operating in sectors with high volatile returns: firms are more leveraged in companies where stock market is less developed	Power of companies for shopping around will increase in financial market based-economies

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Golland and Gehlhaar (2002)	Germany	How will SME financing change due to Basel II?	Positivism	Explanatory	Quantitative, deductive (time series)	Survey	Mono method	SME, financial services industry	Primary data and secondary and	Not-stated, 1,500 participants	Only descriptive statistics (time series)	SME financing will become more difficult due to poor controlling and transparency.	Change in financing towards mezzanine
Hartl (2002)	Germany	What effect will Basel II have on the tourist industry?	Positivism	Exploratory, partly descriptive	Quantitative, deductive	Modelling	Mono method	Tourist industry Austria (primarily SMEs)	Secondary data	Purposive sample, tourist bank database	Only descriptive analysis	Tourist: negative equity capital and dependency on loans will lead to a 'selection process'; credits will become dearer	Strategies to enhance equity capital, move to alternative financing or enhance capital base (reveal hidden reserves, in-corporate new investors)
Hedtstück (2007)	Germany	What is the effect of private equity regarding SMEs?	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	SMEs	Primary data (elite interviews)	Purposive sample	---	Private equity companies foster growth of SMEs	SMEs will focus stronger on private equity
Heid (2007)	OECD	What is the cyclical effect of Basel II?	Positivism	Primarily explanatory	Quantitative, deductive	Modelling	Mono method	Corporations, not only SMEs	Secondary data	Probabilistic sample: Bankscope of Bureau van Dijk (OECD), 2004: 945 commercial banks, savings banks and credit cooperatives	Simulation, analysis of difference	Bank-based economies will be more cyclical (lending in terms of economic position): in terms of financial market-based economies, the effect is smaller	Try to cope with cyclical effect
Hollasch and Berg (2007)	Germany	Why are alternative forms of financing not more prevailing?	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	SME	Primary data (question-naires)	Purposive sample	Only descriptive statistics	Financing situation deteriorated due to Basel II	SME credits will become dearer; therefore: en-hanced use of mezzanine and private equity

Author, Date	Region	Research Question (Purpose / Objective)	Research Philo-sophy	Research Purpose of Inquiry	Research Approach (Metho-dology)	Research Strategy	Research Choice	Unit of Analysis	Techni-ques & Proce-dures (Data Coll. Methods)	Sampling	Techni-ques & Pro-cedures (Data Analysis)	Results	Expected Reaction
Jacobson *et al* (2005)	Sweden	To evaluate if SME loans and retail credits are different in terms of credit risk under Basel II	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	SME (with more than approx USD 10,000 in equity)	Secondary data	Large purposive sample (> 100,000 items) from two of the four biggest Swedish banks	Descriptive statistics, analysis of regression	Retail and SME portfolios are usually riskier than corporate credit	A special treatment for SMEs under Basel II is not justified
Kopecky and VanHoose (2006)	Internat-ional	The purpose is to develop a banking-sector framework with heterogeneous loan monitoring costs	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	Banks and corporations (loans)	Secondary data	Probabilistic sample	Primarily analysis of correlation	The author argues that once capital requirements are in place, the simulations indicate that regulators can contribute to higher overall loan quality by toughening capital requirements	Capital requirements will be tightened
Larsen and Bjerkeland (2005)	Norway	To evaluate if unexpected losses are lower or larger for SMEs	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	All Norwegian companies	Secondary data	Probabilistic sampling	Only descriptive statistics	A discount for SMEs due to Basel II can not necessarily be rejected	Not applica-ble due to the selective time series acc. to the authors
Nitschke and Kuper (2007)	Germany	To evaluate the affinity of SMEs towards private equity (PE)	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	German companies	Primary data (online question-naires)	Probabilistic sample (amongst mandatory mem-bers of the Cham-ber of Commerce)	Only descriptive statistics	German companies regard PE as means of improving rating	Private equity will advance in Germany
Nordal (2009)	Norway	Evaluation of the incentives to implement the IRB approach	Positivism	Explanatory ,	Quantitative, deductive	Modelling	Mono method	SMEs (as well as other corporations)	Model driven approach	Basel II based assumptions	Model building and testing	Numerical example in order to implement the IRB approach	Suggestion to use thresholds evaluated in the models
Planken-steiner and Zim-mermann (2008)	Germany	The objective is to evaluate the effect of the subprime crises on corporate financing	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	German corporation (not only SMEs)	Primary data (questionna ires)	Large sample, taken from 25 major German associations	Only descriptive statistics	The effect of the subprime-crises will be minor, however SMEs are more affected (in terms of credit decline due to intensified rating)	Investments in SMEs will be reduced due to credit decline rate
Rubin and Nada (2008a)	United States	What will be the effect of Basel II on the US and US banks?	Realism	Descriptive	Qualitative, deductive	Hypothesis testing	Mixed method	Banks	Secondary data	Usage of statistical data	Only descriptive statistics	Reduction of regulatory capital for smaller banks (which is favourable for SMEs in the US)	Regulators will in general not lower capital requirements

Author, Date	Region	Research Question (Purpose / Objective)	Research Philo-sophy	Research Purpose of Inquiry	Research Approach (Metho-dology)	Research Strategy	Research Choice	Unit of Analysis	Techni-ques & Proce-dures (Data Coll. Methods)	Sampling	Techni-ques & Pro-cedures (Data Analysis)	Results	Expected Reaction
Sandvoß (2007)	Germany	What chances will German SMEs have due to the changes in the German banking system?	Positivism	Explanatory	Quantitative, deductive	Case study like	Mono method	Banks, SMEs	Secondary data	Literature review	Only descriptive statistics	Intention to repair margins on SMEs due to low RoCE	Credits will be more costly in Germany for SMEs
Saurina and Trucharte (2004)	Spain	The objective is to evaluate the impact on bank credit exposures to Spanish SMEs	Positivism	Explanatory	Quantitative, deductive	Hypothesis testing	Mono method	Spanish SMEs	Secondary data were used for the hypothesis testing	Probably probabilistic sample: SME data from The Bank of Spain Credit Register	Only descriptive statistics	The effect of Basel II will level out in Spain	Further research will be needed to make a final assessment
Schäfer *et al* (2004)	Germany	To evaluate determinants of debt and (private-) equity financing in young innovative German SMEs	Positivism	Explanatory	Quantitative, deductive	Modelling	Mono method	SMEs with a focus on young high-tech companies	Secondary data were used for the hypothesis testing	(Near) probabilistic sample from KfW data (1999 – 2003)	Descriptive statistics, regression analysis, analysis of difference	Equity financing of a young high-tech firm is an increasing function of financial risk	Young high-tech SMEs will adjust their financing decision according to the phase
Schäfer *et al* (2007)	Germany	The purpose is to evaluate the financing choices of young companies	Positivism	Explanatory	Quantitative, deductive (model set-up, hypothesis tested)	Modelling	Mono method	SMEs with a focus on young companies	Secondary data were used for hypothesis testing	(Near) probabilistic sample from KfW data (1999 – 2004)	Analysis, correlation and regression analysis	The riskier a financing project the more likely it is to be financed by private equity rather than a bank	SMEs will adjust financing decision according to the phase
Schalast and Barten (2006)	Germany	To evaluate the private equity situation regarding PHB SMEs in Germany	Positivism	Explanatory	Quantitative, deductive	Survey	Mono method	German SMEs (privately owned)	Primary data (questionnaires)	(Near) probabilistic sample from VDMA data	Only descriptive statistics	German industry entrepreneurs believe that Basel II will lead to increased credits rates	SMEs believe to use more private equity in the future
SFS (2003)	Germany, France, UK, US	To evaluate corporate finance priorities of Mittelstand CFOs	Realism	Explanatory	Qualitative background gathering, followed by quantitative phase	Survey	Mixed method	Major SMEs	Primary data (semi-structured interviews, case study)	Purposive sample: 500 CFOs in large SME companies in Germany, France, UK and US	Only descriptive statistics	German CFOs that the financial situation will decline due to a high dependency on bank loans	CFOs in Germany are looking for alternatives to bank loans
Suyter (2008)	Germany	Establish effect of Basel II	Positivism	Descriptive, partly explanatory	Quantitative, deductive	Case study like	Mono method	Banks, SMEs	Secondary data	Literature review	Only descriptive statistics	The author questions the incentive aspects of Basel II	SME credits will become dearer

Table 1 Research design evaluation regarding research studies under review

3.3 FINANCING FOCUS: BANK-BASED ECONOMIES VS. FINANCIAL MARKET-BASED ECONOMIES

Bank-based economies (Heid, 2007) like Germany (Norden and Weber, 2005) are those where bank credits are the prime source of external corporate financing, contrary to market based-economies (Demirgüç-Kunt and Maksimovic, 2002). In Germany, for example, on a scale from 1 to 6 'bank credits' gets the highest importance ranking (5) as a means of SME finance (Deloitte & Touche, 2007). This is a strong Pre-Basel II indication that, from a Pre-Basel II perspective, the house bank principle was intact in Germany (see hypothesis 1). More than 80% of SMEs stated that they obtain information about financing options from banks, the chartered accountants come second with less than 60%. This is acknowledged by the author's empirical quantitative and qualitative research (see sections 4 and 5). On the other hand, in financial market economies, other forms, like stock markets or private equity, play a major role.

In Germany and Italy, state backed credits, handed out by the 'savings banks', are the main source of SME credit supplies, according to the savings bank association DSGV (2005). DSGV states that 40% of the SMEs rely on the savings bank 'Sparkassen group'. Zecchini (2006) points out that Italy accounts for 37.3% of the whole European mutual guarantee sector. Another reason for this dependency could lie in the low ratio of stock market capitalisation to GDP: Italy ranks lowest according to Giannetti (2003:210), similar to Germany. A survey by the German Share Institute (DAI, 2007) indicates that only 9% of the German population are shareholders – in relation, for example, to a ratio of 26% in Finland. This correlates with Demirgüç-Kunt and Maksimovic (2002) who found out that Germany ranks low on the TOR index (shares traded in the stock exchange divided by market capitalization) in a range of industrialised 40 countries under review. This means that stock market activity is low.

Drahten (2007:7) traces this back to a *'risk averse culture'* in Germany and strong regulation. Reluctance to open finance communication in terms of investor relation could be another explanation: Diller *et al* (2005) undertook a study regarding finance communications of German SMEs. They used a sequential mixed-method design: the qualitative phase included elite interviews followed by a subsequent quantitative phase. The reluctance to communicate efficiently was illustrated by the following two statistics: 40% of German SMEs regard communications with investors as cumbersome. Only 43% of SMEs know how the shareholders use their financial information. This is in line with another empirical research amongst CFOs (SFS, 2003), where only 10% expect that transparent reporting structures will become of 'very high' or 'high' importance. These research studies provide evidence, from a Pre-Basel II perspective, that limited openness is predominant. This has to change in order to obtain alternatives to bank credits (see hypotheses 2.b and 3). This is some of the advice for SMEs given by the interviewees in the qualitative section 6 (see second part of the research question).

Evaluating the relationship between financial development and corporate growth, Braun and Raddatz (2007) state that domestic financial development is most important – despite financial integration – regarding sectors with little access to an integrated market. SMEs can be regarded as such a kind of sector according to the author.

Based on an evaluation of one hundred institutional Dutch investors, Cumming and Johan (2007) evaluated the impact of regulation regarding the affinity of these investors to invest in private equity. They apply an empirical, deductive approach: they concluded that *'Basel II significantly increases the probability of institutional investment in private equity'* (Cumming and Johan, 2007:3244) for the following reasons: the regulation will harmonise the way that several institutional investors can act in a joint way for the same private equity fund, for example, as limited partners. Private equity is so far not transparent because in general, only professional, and therefore

experienced, investors place money in such funds. Basel II regulations will exert indirect pressure as the portfolio company, as well as other investors, have to comply with the New Capital Accord. According to the author, this influx of money will have a positive momentum on SME financing, as private equity corporations will downsize in order to allocate their money accordingly (BVK, 2006); thus, providing evidence regarding hypotheses 2.b and 3.

After the third Consultative Paper (BCBS, 2003) was released, Garside and Bech (2003) used a statistical methodology by applying the effective RWA approach to different product classes. According to the author, they made an implicit hint that some bank-based economies, like Italy and Germany, will experience higher credit costs for their SMEs as sovereigns will experience the highest cost increase.

This is in line with cross-country mixed-method research by Siemens Financial Services (SFS, 2003). An exploratory, background gathering phase was followed by a quantitative survey based phase. They concluded that finding alternatives to bank credit is amongst the top-three priorities of the CFOs of major German Mittelstand-companies. The survey acknowledged that even major SMEs are still focused on bank loans and use only a limited range of financial instruments. Therefore 63% of German CFOs who took part in the survey believe that the financing situation will become more difficult – compared to 12% and up to 23% in France, UK and the US. Consequently, 64% are thinking about expanding their existing range of instruments in Germany compared to between 22% and 29% in France, the UK and the US.

This is in line with Schalast and Barten (2008:11); based on their empirical research, amongst German industry companies, they point out that the *'risk-adjusted pricing means for companies who are searching for credits in many cases an increase in credit rates, which can hardly be covered cash flows'.* This provides evidence for hypotheses 1, 2.b and 3.

Giannetti (2003:206) argues that in countries with a high capitalised bond market, like the UK or The Netherlands, companies substitute bank loans with bonds. He bases his findings of his explanatory research on an extensive data set of 150,000 companies.
Heid (2007) compared the pro-cyclical effect of Basel II in terms of economic situation and ease of getting a loan within a quantitative explanatory research design. He based his findings on a multi-factor simulation model which he calibrated with real world information using OECD data from 945 commercial banks, savings banks and credit cooperatives. He argues that bank-based economies will be more affected by the cyclic effect of Basel II (lending in terms of economic position) than financial market-based economies.

Cowley (2002) applied a deductive approach based on secondary data. In the dawn of the amendment of the third Quantitative Impact Study, he puts focus on the private equity market arguing that capital requirements make it much more difficult for banks to invest in venture capital (VC) funds. This will be harmful to VC funds as banks are – especially in Europe – the largest investors in venture capital with 24% (9.2 billion euros in Europe in 2001). 81% of venture capital investment goes to companies with less than 100 employees. However, there is evidence that this issue would not harm firms in Germany (‘Mittelstand’) so much (see section 2.10.3). On the other hand, Cowley (2002) argues that the state owned public funds move towards larger companies, as do private equity companies. Therefore, there will be fewer alternatives to bank credits for German SMEs. According to Cowley (2002), UK based SMEs will be most affected. Based on these combined findings it can be derived regarding SMEs, that bank-based economies like Italy will experience a reduction in lending (especially in terms of economic downturns).

Furthermore, other alternative forms of finance are on the rise too, as Golland and Gehlhaar (2002) point out in their explanatory paper. They argue

that the house bank principle will deteriorate in Germany (see hypothesis 1) and that credits will become dearer due to Basel II. The German Mittelstand has a very low equity basis which is below 18%. They applied a quantitative survey using a purposive sample of 25 major European credit suppliers engaged in corporate financing of 1,500 German SMEs. They argue that there will be a shift in financing away from bank loans towards alternative forms of financing like mezzanine. In general, they believe that financing will be neither significantly dearer, nor cheaper: just different.

This is in line with an empirical questionnaire-based research by Deloitte & Touche (2007): already 43% of the participants think about using private equity or mezzanine to strengthen the equity basis. This is an indicator that SMEs are opening up to alternatives to bank credits (see hypotheses 2.b and 3).

Schäfer *et al* (2007) investigated the effect of financing of innovative SMEs in the Pre-Basel II area using a purposive sample based on 1,000 KfW projects between 1999 and 2004. They developed an explanatory model based on game theory using quantitative methods in order to test certain hypothesis. Their findings provide evidence that private equity firms are more willing to take risk which is no surprise. However, the researchers argue that banks are especially looking for companies with higher revenues, rather than SMEs, even if these show a higher risk profile in a comparative case. Furthermore, the availability of cheap public funds has positively impacted on equity financing (which again refers to hypotheses 2.b and 3).

This supports an earlier study from 2004 (Schäfer *et al*, 2004:1) between 1999 and 2003. Based on a similar hypothesis testing methodology, evidence is provided (see Basel II 'risk rating') that '*the probability that a young high-tech firm receives equity financing is an increasing function of the financial risk*.'

Nitschke and Kuper (2007) undertook a survey regarding private equity in relation to Basel II. Already, 12% of the 1,100 respondents, from the corporations of this explanatory, quantitative research, believe that incorporating private equity will improve their Basel II rating (which is in line with hypothesis 2.a and the advice to the SME part of the research objective). Approximately one quarter of the companies under review already regard private equity as a financing option: the smaller the company, the more it is open for private equity. They ascribe this to the low equity ratio of German companies and the respective poor rating. As such, 30% of the companies who regard Basel II as a risk are in favour of private equity. Only 25% of the Basel II critics state being sufficiently financed, in relation to 46% of the whole sample. Interestingly enough, the financial services industry is a major investor in private equity funds (Frommann, 2006a).

Based on the findings from Schäfer *et al* (2004 and 2007), as well as Nitschke and Kuper (2007), it can be argued that: in a sense SMEs 'discovered' private equity because of Basel II and therefore became more open to the financing options which enforce their bargaining power (see hypotheses 2.b and 3). This is in line with a recurring study of the renowned German financial magazine finance (Hedtstück, 2007). The entrepreneurs who were questioned state that changes via buy-outs and growth strategies could be accomplished (under the Basel II regime) with private equity as banks become more restrictive. They base their findings on selected (paired interviews) with 13 private equity backed entrepreneurs.

On the other hand, authors like Gregory *et al* (2005) or Frey and Kuhn (2007) for example regard this 'freedom of choice' as a more hypothetical option – especially for smaller SMEs. This is in line with Ehrhart and Zimmermann (2007) who argue, in their explanatory research, that this positive climate might not so much go into substituting bank credits (this is one of the few examples of evidence regarding the alternative hypothesis 1, that the house bank principle will not deteriorate). In total the conclusion is that the effect will be levelled out.

Using a quantitative, questionnaire based survey the authors Hollasch and Berg (2007) argue in their explanatory research that SMEs in particular have become increasingly interested in alternative forms of financing. About one-third already had experience with alternative financing, such as private equity or mezzanine. 67% of those stated that they had reached the intended goals. As discussed above, Brokamp *et al* (2004) regard mezzanine – with its 'in-between function' regarding credit and equity – to be a viable option for SMEs to escape the 'credit crunch' (as stated in hypotheses 2.b and 3). However, Bruch (2007) believes that the majority of SMEs will be excluded from traditional mezzanine for two reasons: less than 75% of the big SMEs (with revenues above 10 million euros) comply with the required equity quota, which is normally between 10% and 20%. Furthermore, traditional mezzanine finance providers, like the big German banks, require companies to have a high rating. Commerzbank, for example, requires at least Moody's Baa3, which is hard to achieve for a small SME. This is in line with the assessment from the interviewees, in the qualitative section 6, especially from the side of the banks and the providers of alternative means of financing.

In the dawn of Basel II Carey *et al* (1998) made a comprehensive study regarding the risk affinity of banks vs. other finance companies in the late 1990s. They provided evidence – related to US companies – that there is a difference in how financial players cope with observable risk. Finance companies tend to finance lenders with higher observable risk and leverage. Basel II can be regarded as a means of making risk more transparent. The author regards this as an indication that financing of SMEs should become more difficult in banking economies as they are concerned as being more risky, according to authors like Larsen and Bjerkeland (2005). The opposite can be regarded in relation to 'financial market-based economies'.

The comprehensive findings are displayed in Figure 19.

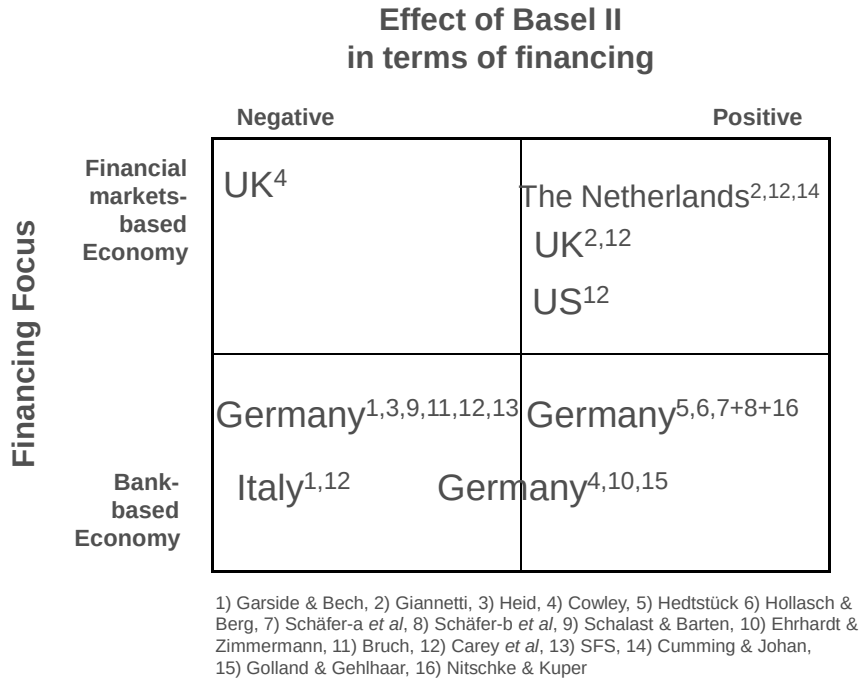

Figure 19 Basel II effect: bank-based economies vs. financial market-based economies

It shows that there is no unique pattern regarding the discriminating factor 'financing focus' with regard to the research objective / question which considers what the effect of Basel II will look like. There are researches who postulate that for financial market-based economies like the UK and the US that SMEs credits will become dearer. Others argue they will become cheaper.

3.4 GOOD PROTECTION OF CREDITOR RIGHTS / FORBEARANCE

According to De Jong *et al* (2008) the protection of creditor rights is an important determinant. Although Giannetti (2003) does not directly reflect on Basel II he provides valuable insights regarding regulatory issues. Setting his findings into relation with Basel II allows for some interesting conclusions:

Giannetti (2003:201-202) claims that '*Good protection of creditor rights helps to lengthen debt maturity of firms with volatile return*' and '*Listed companies have … longer debt maturity than unlisted companies …*' Based on an empirical study of 40 economies Demirgüç-Kunt and Maksimovic (2002) too stress the importance of the legal system. A direct implication of these studies is that, in countries with weak legal systems, and consequently, weak financial systems, firms obtain less external financing which results in lower growth. Basel II can be regarded as a means to enforce creditor rights – especially considering Pillars 2 and 3 (Decamps *et al*, 2004).

This could imply that SMEs in countries which rank low on the credit protection index (Giannetti, 2003), such as France, Ireland and Portugal as well as Belgium, Italy, the Netherlands and Spain, can benefit from Basel II. There is evidence in literature regarding a trend towards convergence on central banking governance, even in the Pre-Basel II era. Acharya (2003), for example, argues that there is a spill-over effect from more forbearing to less forbearing countries in terms of regulations (here: disclosure policy). In a quantitative explanatory study Buch (2003) sets information cost and regulatory issues regarding the international lending business into perspective based on secondary data from the Bank for International Settlements. Using a regression model Buch (2003:865) states that regulation seems to be relatively more important than information cost in economies like Germany, the Netherlands, the United States and the UK. On the other hand, in countries like France, Italy, Japan or Spain it is the other way round. Therefore, banks in the first group of countries will try to enter countries which have low regulatory barriers. The European Commission set Basel II as a directive (Roldán, 2006). This implies that small and medium sized banks in the first group might focus on the respective home countries as non-regulative countries are more distant than the EU-25 region. On the other hand, Buch (2003:866) estimates that Basel II will have a positive effect on intra-EU lending. Therefore banks in the second group might invest in

(small and medium sized) corporations as they focus on information cost rather than regulation. Regulation would be stricter, but due to the unified basis, information cost on a relative basis would be reduced. This will – as the author concludes – give SMEs in Germany, the Netherlands, the US and the UK an even better advantage for shopping around, this is in line with hypotheses 2.b and 3.

On the other hand, an opposite conclusion could be valid as well by combining the findings of Giannetti (2003) with an empirical study conducted by Kopecky and VanHoose (2006). They developed a simulation model using loan data from Federal Deposit Insurance Corporation (FDIC) reports. By using analysis of regression they provide evidence that imposing capital requirements on a banking system which was not (strongly) regulated before, will impose higher credit interest rates and will reduce lending in general. That would imply that SMEs in countries like France, Ireland and Portugal as well as Belgium, Italy, the Netherlands and Spain, which rank low on Giannetti's (2003) regulation index, will face higher credit rates. The combined findings are displayed in Figure 20.

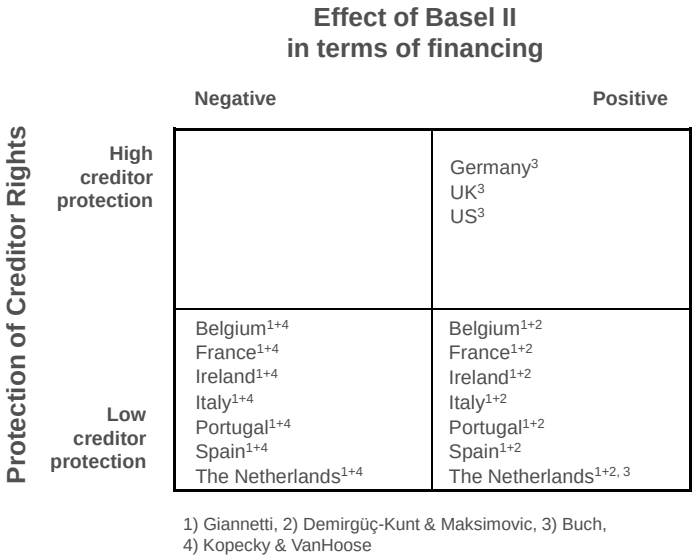

Figure 20 Basel II effect in relation protection of creditor rights / forbearance

Regarding the discriminating factor ‘Protection of Creditor Rights’, no consistent pattern, regarding the research objective / question emerges: there are opposing research findings for SMEs, which rank low on the ‘creditor rights protection index’.

3.5 EFFECT ON ECONOMY STRUCTURE

Based on a probabilistic sample from the US Small Business Administration (SBA) lending program, Glennon and Nigro (2006) derive that SME defaults are closely related to the region and the economic strength in which the SME operates.

According to a study for the European Commission (Barfield, 2004b), total capital requirement will be reduced in many European countries (in declining order: France, UK, Belgium, Spain and Portugal). However, in the Netherlands and especially in Germany the reduction will be close to zero. In Austria and especially in Greece the capital requirement will rise (see above, Figure 9). A special focus of this study was laid on SMEs and on small banks. In all cases the capital requirement regarding operational risk will increase to 7% and 10% (Barfield, 2004a), the segmentation regarding ‘low’ and ‘high’ operational risk is based on this data set (see Figure 21). Operational risk could be overcompensated in nearly all countries by the reduction of credit risk requirements which would lead to the effects mentioned already.

Almost nullification of the effect is expected by the German Banking Association, BdB (2005). Based on economic SME statistics, they argue that credit rates will stay stable or increase only slightly due to Basel II. Because credit costs comprise only 2% of all costs according to German Federal Bank statistics (Deutsche Bundesbank, 2003:48-49) the increase will be marginal.

However, critics might argue that the issue is more the question of getting credit at all (see Reize, 2007:91, for example), this is linked to hypotheses 1, 2.b and 3.

Hartl (2002) examined the effect of Basel II using a purposive sample based on secondary data from a tourist bank database in a German speaking market. As 90% of the industry relies on bank loans and the SME-shaped industry has a negative equity capital (because of non-exposed hidden reserves) he expects a selection process. Credits will become dearer for the bulk of the industry players. Derived from this secondary data set he established a model combining equity capital and hidden reserves. Using a deductive approach, he concludes that a remedy against adverse effects of Basel II will be to strengthen the capital base by incorporating new investors, exposing hidden reserves or by using alternative forms of financing, such as mezzanine or factoring; this is an indication for hypotheses 2.b and 3.

Bartels (2002) bases his SME focus not primarily on size but on the entrepreneurial leadership function. This is in line with the 'niche market leadership strategy' that was postulated in hypotheses 2.b and 3: due to high taxes the German Mittelstand have tried to lower earnings which resulted in a low equity ratio of less than 20%. As a consequence the German 'Mittelstand' is highly dependent on bank credit as they could '*not build adequate capital cushions*' (Bartels, 2002:49).

This is in line with Ackermann (2003) who argues that it will be more difficult for SMEs to acquire credit for two reasons: poor debtors will not be subsidized with good ones. Second, the weak equity situation of German SMEs will be brought to light due to Basel II. This is an interesting point going to the 'causes of causes' (Olsen, 2003) rather than explaining the symptoms in an 'effect-of-cause' causality (Robson, 2002:17-22, see section 4.1). The 'true cause' according to Ackermann is therefore not Basel II but the weak equity situation of the German Mittelstand.

A summary of the comprehensive findings is shown in Figure 21.

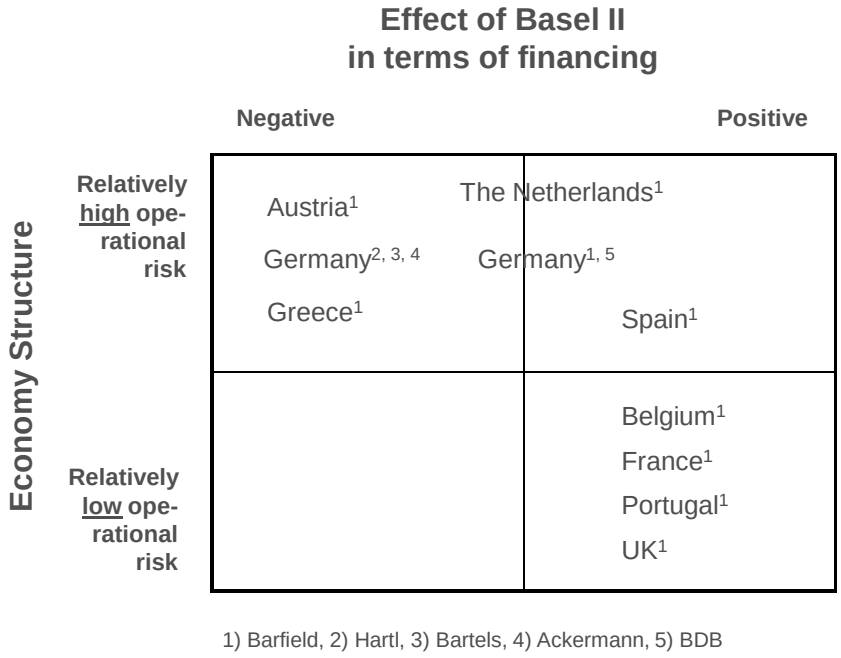

Figure 21 Basel II effect in relation to country economy specific risk factors

It shows, again, that there is no consistent pattern concerning the discriminating factor 'operational risk' with regards to the research objective / question of the effect of Basel II on SMEs. There are countries with high operational risk, such as Greece, whose SMEs will benefit from Basel II, whereas SMEs in Spain, for example, with a high operational risk too, will experience negative effects.

3.6 EFFECT ON BANKING STRUCTURE / SOPHISTICATION

Many authors refer to the strong link between banking structure and banking stability, one of the prime objectives of the New Accord. However, Uhde and Heimeshoff (2009) argue based on their literature review that there are diverging assessments of the relationship between banking fragmentation

and financial stability. The advocates of the 'concentration-stability view', e.g. Boyd *et al* (2003), argue that larger banks are more stable due to the increased capital buffers. On the contrary, Cetorelli *et al* (2007) point out, from the perspective of the 'concentration-fragility view', that a more fragmented banking environment is positive in terms of spreading out risk, for example. Furthermore, the balance in economy-of-scale has an effect on SME credit according to empirical research based on US data: Francis *et al* (2008) researched the impact of banking mergers in terms of SME credits. In the short-term there was a negative effect for new businesses, especially in terms of a large acquirer. However, if smaller banks merge the effect is positive – even in the short term. Craig and Hardee (2007) came to the opposite conclusion based on a large set of US data. In areas dominated by large banks the level of debt is lower than in areas with smaller banks.

According to Barfield (2004a) the impact on Basel II will be determined by the banking structure in the respective country. They examined the competitive structure in the banking sector: in Germany, Austria and Italy, investors experience negative returns (see above, Figure 9) as the Return on Equity (RoE) is lower than the Cost of Equity (CoE). Barfield argues that this can be explained by the high market fragmentation and the existence of cooperative banking institutes (for example German Volks- & Raiffeisenbanken) whose key objective is not profit optimization (see above, Figure 9). This might be related to efficiency: Bos and Schmiedel (2007) evaluated the effect on the single European Market of 1993 based on bank data from 1994 to 2004 in terms of the economy-of-scale effect: they reflect on earlier works from Pastor *et al* (1997) who state that the banking industry in France, Spain, and Belgium is more efficient compared with the banking experiences of Germany, the UK, and Austria.

Due to the competitive structure, Barfield (2004b) expects the following banking behaviour regarding how cost savings will be passed on: benefits will be kept by banks in Finland, Greece and Portugal. Benefits will be spread to customers in Austria, France, Germany, Italy and the United Kingdom,

whereas it will be a split in Belgium, Denmark, Ireland, Luxembourg, Spain, Sweden and the Netherlands. However, using the same argument of record low ROCE from the year 2000 onwards in Germany, Sandvoß (2007) comes to the opposite conclusion, that Basel II will become a driver to improve margins in Germany. Whereas Sandvoß's findings provide evidence regarding hypothesis 1, Barfield's findings progress in a different direction – a greater margin spread will strengthen the 'house bank principle'.

Barfield (2004a) predicts that smaller banks (in Europe) will benefit more. He explains that there are spill-over effects from other exposures within larger banks. As smaller banks have no such offsets they can focus on retail and SME credits. This focus of smaller banks could lead to an estimated reduction in cost of 15% or 34% if these small banks use an F-IRB or A-IRB approach (Barfield, 2004a). Only by sticking to the Standardised Approach will they face a capital increase of 2%. These findings indicate that rating will become of a high importance, as stated in hypothesis 2.a and in the advice given to SMEs (see second part of the research objective / question).

Berger (2004) adds that smaller banks benefit from their 'privileged relationship lending situation'. Based on an empirical research amongst Swedish SMEs, Lundahl *et al* (2009) point out that for SME it is important that a banker cares about the SME and not only provided valid credit rates and effectiveness. Berger's (2004) explanatory research is based on data from other surveys. Using an innovative model and applying various forms of descriptive analysis, regression analysis and analysis of difference, he showed that the competitive situation in the US might only be slightly affected as the A-IRB advantages of large institutes might not outweigh the 'relationship lending' advantages of smaller banks in the short run, but maybe in the longer run.

On the other hand, authors like Altman and Sabato (2005) anticipate a revival of larger banks. Based primarily on US research in the SME lending sector

they argue that these banks can lower capital cost using a blended ‘pooling’ approach due to their refined systems. Therefore, they envision a further consolidation of the banking sector, as larger banks might acquire smaller banks. In fragmented banking structures like Germany (Ackermann, 2003) such takeovers are more likely as smaller banks are still dominant in the German economy. Ackerman (2003) points out that Germany has the highest branch density with one bank per 1,450 persons in Europe (2,696 different banks in 2003); if this merger and acquisition trend becomes sustainable the situation might change accordingly. As the house bank principle is associated with smaller banks (Berger, 2004), this provides further evidence regarding hypothesis 1. This regional approach makes sense as Degryse and Ongena (2005) found out: by testing data from 15,000 bank loans to SMEs in Belgium between 1975 and 1997 against their hypothesis, they found evidence that loan rates decrease with distance between bank and SME.

This relates to earlier research by Cole (1998) too: he tested hypotheses based on an empirical data set from US SMEs. His findings provide evidence that an existing relationship helps to extend credit due to the enhanced ‘private information’. As this information is of less value when the creditor uses multiple sources of finance the probability of extending credit is reduced in such a case. With Basel II this ‘private information’ will become more institutionalised and the need or possibility for shopping around on a more homogeneously-rated basis will increase. The author concludes that this trend might enable SMEs to shop around as the new regulation will enhance competition among bank clusters; thus, providing further evidence regarding hypotheses 1, 2.b and 3. Therefore, it can be argued that the combination of refined tools of the large banks, in terms of Basel II, with the regional aspect means of mergers and acquisitions will lead to a beneficial environment for SMEs in the countries under review.

Rubin and Nayda (2008a) come to a similar conclusion: based on an evaluation of public bank data they argue that even for smaller banks which focus on SMEs, capital requirements will be lower in the US.

Cartwright and Sarraf (2005) used an explorative approach based on a purposive sample of secondary data in case-study-like research. They argue that in the UK, Germany, France, Spain and Italy revenue growth of banks will go down – amongst other reasons – due to maturing markets and intense competition with little room for interesting margins and for lowering credit rates. Therefore, especially in Germany, Austria and Spain, banks have made joint investments in systems. This will have the effect that even smaller institutes can benefit from the changes which other authors, like Dietsch and Petey (2004), expected for only major institutes. This might strengthen the house bank principle (see alternative to hypothesis 1).

Setting the findings in relation to the supportive studies mentioned above the following picture emerges, as shown in Figure 22.

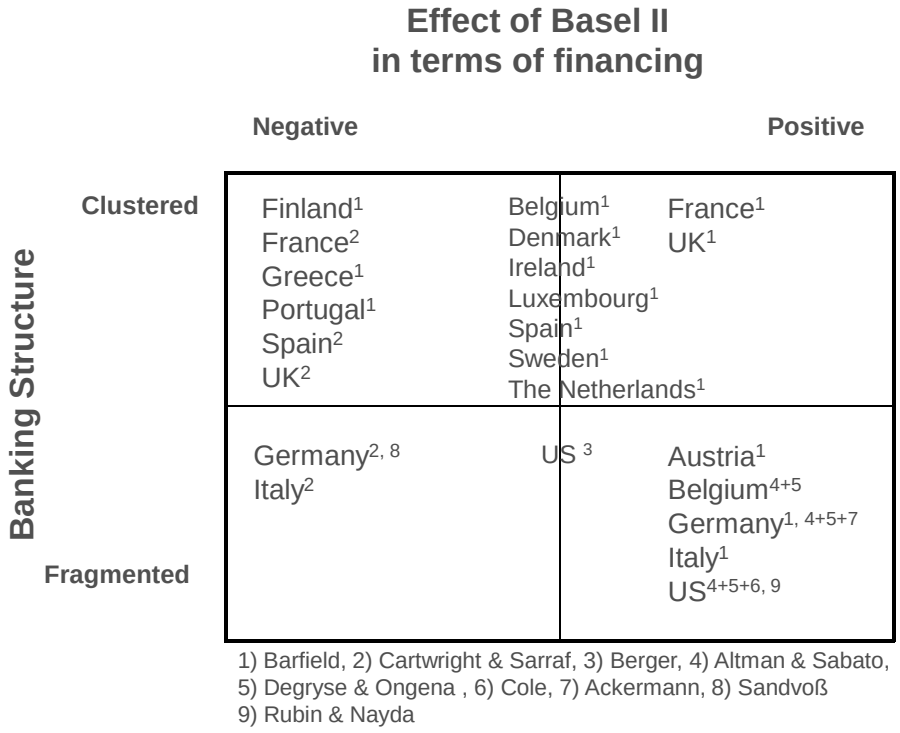

Figure 22 Basel II effect in relation to banking structure

Taking the combined findings into account there is evidence, regarding the research objective / question of the effect of Basel II, that SMEs in some countries with an already consolidated banking sector, such as Finland, experience an increase, whereas in the UK a decrease in credit rates is predicted. Therefore again, no unified pattern emerges regarding the discriminating factor (here: 'Banking Structure').

3.7 BASEL II INTRINSIC APPROACHES

The Basel II intrinsic approaches cover selected controversial issues mentioned in the Basel II section as well as special topics related to the special status of SMEs.

One of the main elements of the Basel II debate relates to the PD and Asset Correlation relationship. Asset Correlation means the correlation of the changes in enterprise value of two companies (assets, and therefore, according to Merton's model (1974), default probabilities). In relation to risk measurement indexes, these are generated to illustrate how a company's performance (for example default) is dependent on the belonging to a certain sector.

Within an explanatory research approach Dietsch and Petey (2004) questioned the negative relationship between PD and Asset Correlation, which is one of the fundamental assumptions of the Basel II Accord. Building on secondary data from 280,000 companies in France and Germany, the German sample frame is based on Creditreform data, which can be regarded as probabilistic. Dietsch and Petey (2004) use a special 'one-factor risk model' and descriptive statistics to underpin their findings. The authors derive that SMEs show a higher risk profile for default than larger enterprises in relation to the Basel risk curves. However, by dividing SMEs in specific classes and by applying a new theory they try to 'falsify' one of the fundamental Basel II assumptions on the basis of their empirical research.

They conclude that '*the less risky SMEs will pay for the more risky firms*' (Dietsch and Petey, 2004:774) imposing strong financial disadvantages in terms of high capital cost. This will foil the rating focus as stated in hypothesis 2.a. On the other hand, Altman and Sabato (2005) developed a new innovative model in order to evaluate the effect of Basel II on SMEs based on the Basel II assumption. Within their explanatory, quantitative analysis they used purposive samples from banks and public databases of selected G10 countries (US, Italy, Australia). By applying a one-factor method related to the A-IRB approach, Altman and Sabato (2005:29) calculated that, capital requirements can be lowered from 8% to 6%; thus, giving large banks a competitive edge as they run sophisticated systems which can already cope with A-IRB. This supports hypothesis 1.

As discussed in section 2.5.2 the 'other retail' discount was given as SMEs were regarded as being less risky, with regard to systematic risk like economic downturn, which is the case regarding larger corporations and creditors (see Saurina and Trucharte, 2004, and Bonfim, 2009, for example). However, in an explanatory research project, Jacobson *et al* (2005) question the fact that SME loan portfolios are consistently less risky (in terms of unexpected loss rates) and therefore require less economic capital than the larger corporate loan portfolios. Investigating data from two Swedish banks in a one-factor approach they failed falsify this assumption. It is argued that this assumption is very specific, related to the SME definition and segmentation. That means that SMEs will experience a risk deduction which is not justified under the new Basel paradigm.

Based on an empirical model, Altman and Sabato (2005) came to the conclusion that banks in the US and Italy (as well as Australia) will use a 'blended approach' for segmenting SMEs in the retail and the corporate class in order not to pass the Basel I level, which could be achieved by 'classifying' at least 20% of the SMEs as retail.

Rather than applying a one-factor approach like Dietsch and Petey (2004), for example, Larsen and Bjerkeland (2005) use a multi-factor approach. Their quantitative, deductive research is based on a purposive sample of Norwegian data on which loss distribution models are applied. This research brings a new aspect into the discussion as it focuses not only on the distinction between the sizes of corporations (e.g. Claessens *et al,* 2005), but on expected versus unexpected losses on a time series basis.

Nordal (2009) came up with a numerical example in order to implement the IRB approach in relation to SMEs based on a real options framework providing evidence that the reduction will be only from certain thresholds onwards.

On the other hand, taking the adoptions of the various consultative papers into account – such as adjusted risk curves for corporate and retail risk portfolios – Saurina and Trucharte (2004) estimate that the effect of Basel II will level out in Spain. The regulatory capital will decrease only slightly regarding the different Basel II approaches simulated.

As discussed in section 2, regulation regarding SME financing underwent several changes. Regarding the expected positive effects for SMEs due to the 'Mittelstands-package' in 2004 – primarily on behalf of German negotiators – authors with a focus on Germany, e.g. Bräunig and Lob (2007), argue SMEs will be better off due to the retail classification and the introduction of SME suitable securities, such as life insurances. However, they acknowledge in their initial explorative assessment, based on the Basel II documents, that German SMEs are yet not fully aware of the changes initiated by German lobbyist work, especially regarding German SMEs.

On the other hand, despite the 'Mittelstand package' Ahrweiler *et al* (2007) came to a different assessment based on a meta-study approach. Combining the various expected reactions regarding SMEs they believe that German SMEs will be negatively affected due to the 'traditional' low equity ratio of

German SMEs (pro-cyclical effect), an enhanced demand of securitisation, and increased transparency demands by German banks. Similarly, Suyter (2008) doubts the 'incentive' aspect in terms of SMEs. The German based research, in particular, indicates a reduction in the house bank principle (hypothesis 1). Applying an extensive, empirical survey amongst 5,000 corporations, Plankensteiner and Zimmermann (2008) conclude that another issue for SMEs is that credit will become dearer because the maturity – in case of investment credits – is not correlated to the investment period.

From a German Pre-Basel II perspective BWI (2002) made a first rough-cut estimation of the Basel II impact in the year 2002. Based on an explanatory literature review and quantitative studies from Creditrefom on bankruptcy statistics or bank internal secondary data, they estimated that getting a loan would be more difficult for SMEs in general and the steel industry in particular.

An overview of Basel II research studies related to intrinsic approaches can be found in Figure 23.

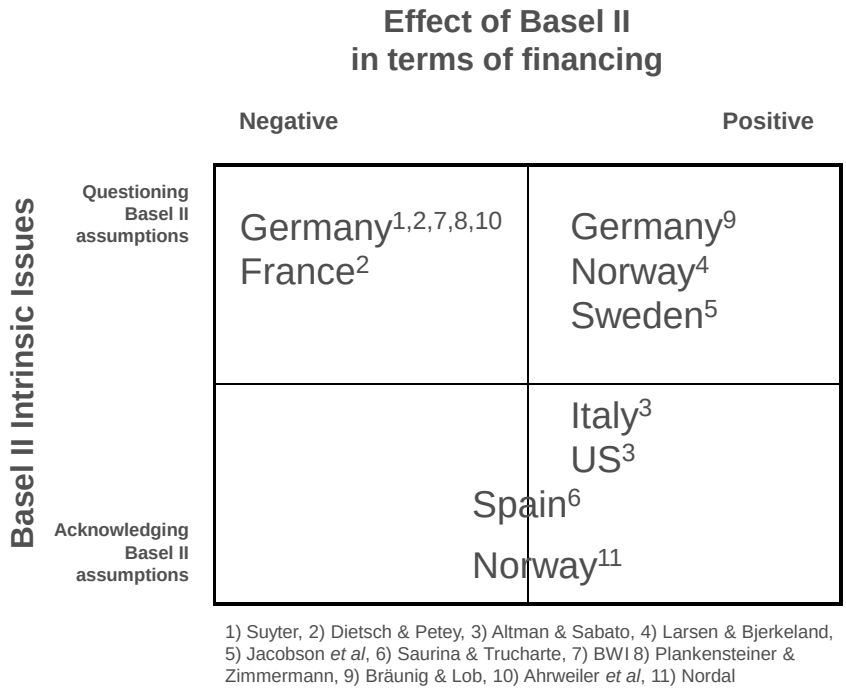

Figure 23 Basel II effect in relation to Basel II intrinsic issues

Again, no consistent pattern emerges in terms of the author's research objective / question regarding the effects of Basel II on SMEs. In relation to the discriminating factor, 'Basel II Intrinsic Approaches', some researches show that researchers who question the Basel II assumption come to the conclusion that SME credit will become dearer (e.g. for French SMEs), whereas others predict the opposite (for Swedish SMEs, for example).

4 RATIONALE FOR CHOICE OF RESEARCH DESIGN

As described in section 3 the various (Pre-) Basel II research papers do not provide a homogeneous picture of how the effects of Basel II in terms of SME financing will look. The purpose of the DBA research is to close this research gap by establishing how the effect of Basel II regulation on financing of SMEs in Germany will look from the SMEs' and financiers' perspective. Furthermore, the literature research provides evidence that there is a research gap in how SMEs can cope with the effect. This chapter explains and justifies the research design which was proposed to close the research gaps mentioned in the introductory section 1.1.

The chapter is structured as follows. As the research design is dependent on the research philosophy (Kavous, 2003), section 4.1 provides a description of scientific realism, which is the philosophical stance of the author, and sets this in relation to positivism and the Popperian stance (see Popper, 2002). In this section the main concept of triangulation is introduced as it builds the basis for the chosen 'sequential-exploratory' research design which is described in section 4.2 including an in-depth introduction and justification of triangulation.
In Section 4.3 the design of the quantitative data collection and quantitative data analysis is illustrated as it builds the basis for the quantitative empiric section. Alike section 4.4 provides a description of the qualitative data collection and qualitative data analysis which builds the basis for the qualitative empiric section.

4.1 RESEARCH PHILOSOPHY AND RESEARCH DESIGN

As discussed in the introductory section there is major controversy regarding the effects of Basel II. However, nearly all of the researchers under review

(see section 3) came from a positivist view claiming generalisation of their (Pre-Basel II) findings based on a quantitative, primarily explanatory research designs on Pre-Basel II data sets. In relation to such controversies, Ardalan (2003) points out that there is a strong demand for augmenting the positivist paradigm with its quantitative based metaphor. Thus, this study aims to provide a richer understanding through a sequential research design (quantitative and qualitative methods) as a means of 'triangulation', which is typical for a scientific realist philosophical approach (Couvalis, 1997). Miles and Huberman (1994:267) go even further by pointing out that 'triangulation is … a way of life': the aim is to establish 'causes of causes' relationships ('realism retroduction', Olsen, 2003) rather than the mere 'effect-of-cause' causalities ('positivist's reproduction') as described below. The concept of triangulation is explained in depth in the methodology section 4.2.2 and is set in relation to Popperian methods.

Kavous (2003) points out that the 'school of thinking' determines the possible solution set and methodological approach. Therefore, it is important to define scientific realism and set the philosophical approach, in relation to the prevalent positivistic approach.

Whereas other social sciences moved towards realism in the 1970s (Bhaskar, 1975) already, the mainstream of finance research is based on positivism (Ardalan, 2003). From a historical perspective, the theory of finance is strongly influenced by mathematical theory which is, as per definition, tautological. The literature review in section 3 acknowledged this. Butler and Olsen (2003) go a step further and claim that research papers which do not comply with a positivist's structure should be rejected. However, in recent years authors like Kavous (2003) question what he calls the '*functional paradigm*', a positivists approach. This is in line with the philosophy module taught at the University of Bradford, DBA course (Seabrook, 2006), where a realism approach (Sayer, 2000) is regarded as a scientific approach with high internal and external validity.

Within recent years, there are several examples of the realism approach using sequential mixed-method designs from academic environments and practitioners' of Basel II research, like: Turnbull and Moustakatos (1996), Almeida (2003) and Schrör and Kayser (2006).

Based on the definition of 'scientific realism' the remainder of this section provides a definition and critical analysis of realism by explaining why this approach, with alignments from Popperian methods, fits better than positivism in this particular area and context of the author's research. This scientific realism stance builds the basis for the specific research design which uses a sequential exploratory research design with triangulation as a central theme, as discussed in detail in sections 4.2 to 4.4.

Smith (1998) points out that from positivism '*all the existing social sciences are somewhat derived*', it is therefore necessary to introduce the concept of positivism upfront. In the knowledge continuum proposed by Hodgson (2003b, see Figure 24), realism follows positivism in its variations.

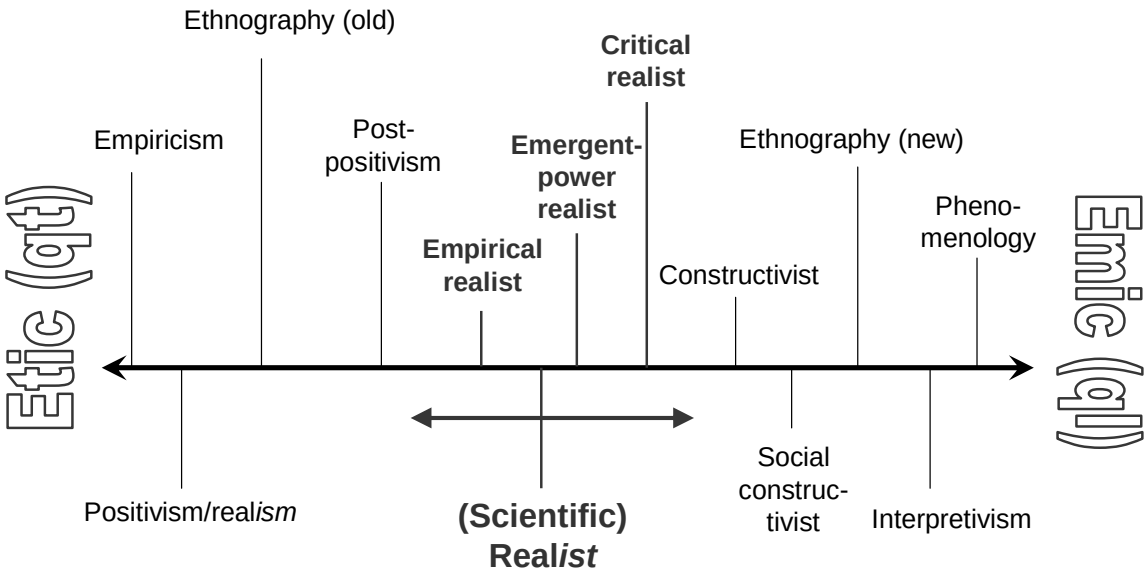

Figure 24 The knowledge continuum based on Hodgson (2003)

4.1.1 Excursus: Positivism

The idea of positivism originated with the founder of the social sciences, Auguste Comte 1798 – 1857 (Greasley, 2004). Positivism arose as a countermovement to religious dogmatism or naïve metaphysical worldviews (Butler and Olsen, 2003). This was replaced by a deductive approach (Smith, 1998:102), based on a belief in universal laws (Popper, 2002:379). This scientific approach combines measurable observations into empirical regularities, according to Durkheim (Smith, 1998:84). Positivism is looking for testable facts in analogy to natural sciences, and for causal links between them (Robson, 2002:17-22).

Thus meaning that there is '*an objective and true account of nature and science*' (Smith, 2000:53). Gaining knowledge is independent from the person, the researcher, or the culture and will result in objective findings. Positivism is rooted in empiricism: reproducible knowledge, as universal generalisations, can be deducted by an empirical way; science is a process of gaining knowledge in a cumulative way (Sayer, 2000:23). In addition, Smith (1998:49) states positivism to be mechanistic and atomistic.

In this sense positivism goes beyond John Locke (Smith, 1998:59-62), who regards sense experiments as the only source of acquiring knowledge – contrary to Descartes (Seabrook, 2006).

The idea of applying scientific approaches to social sciences was developed further by Herbert Spencer (1820-95) who took an evolutionary stance (Butler and Olsen, 2003), like Darwin (Brody, 2005).

4.1.2 Excursus: Popperian Conjectures and Refutations

An excursus on Popperian methods is provided as the concept of refutability and falsifiability, as well as neglecting an absolute truth, is aligned to the concept of triangulation within the realism philosophy. According to Smith (1998:105), *'In the middle of the twentieth century many philosophers of natural and social sciences were beginning to criticize the assumptions and*

aims of Positivism'; especially by Karl Popper who developed the idea of refutability or falsifiability (Popper, 2002:345) based on David Hume's sceptical attitude to truth. As an empiricist he accepts facts and values, but not *nominalism* (Smith, 1998:76). In neglecting a singular objective – truth (*'Truth is above human authority'*, Popper, 2002:39) – derived from induction, Popper (2002:55) proposed trying to 'falsify' a hypothesis (refutation). The falsificationist (Popper, 2002:309) '*say roughly speaking, that what cannot (at present) in principle be overthrown by criticism is (at present) unworthy of being seriously considered; while what can in principle be so overthrown and yet resists all our critical efforts to do so may quite possibly be false, but is at any rate not unworthy of being seriously considered and perhaps even of being believed – though only tentatively'*. Therefore refutation should not be regarded as a failure but as a success (Popper 2002:329) as it fosters continued growth of science (Popper, 2002:291). On the other hand, '*confirmability ... must increase with testability*' (Popper, 2002:347).

As the concept of 'falsification' (Popper, 2002) is central and financial research is rooted in positivism to a major extent (see above), the concept of falsification is incorporated within the author's research as it is in line with the context sensitive approach of scientific realism, as discussed in section 4.1.3. Within the quantitative section 5, the initial hypotheses are tested in line with Popper (2002:48) who states that '*every genuine test of a theory is an attempt to falsify it*'.

In addition, by looking for negative evidence, in terms of alternative hypotheses within the deductively-based analytical procedures (see section 4.4.4), the 'causal networks' (Miles and Huberman, 1994) display evidence regarding alternative hypotheses. From a scientific realism point of view (see section 4.1.3), this leads to amended hypotheses as shown in section 7.

4.1.3 Excursus: (Scientific) Realism

As realism derives from a critique of positivism (Smith, 1998:297), a critical assessment of realism in relation to positivism is provided. Contrary to positivism, realism believes that human beings are not purely deterministic objects, they interact in a complex social environment and behaviour can therefore not be measured by deterministic causal laws (Olsen 2003).

From an ontological standpoint, realism states that a real world external to us exists contrary to nominalism. The researcher – as part of this social context – is subjective to a certain extent as well (Robson, 2002:35). This means that observations are 'theory laden' (Couvalis, 1997). There is no absolute truth like with positivism; facts are questionable. Retroduction (Olsen 2003), examining the 'causes of causes', is a key element not reproduction as it is in positivism. Yet, contrary to relativism (Sayer, 1998:47), realism assumes that there exists an underlying reality which cannot always be observed, by means of data rather than constructed primarily by language, which is the case with constructivism (Sayer, 2000:90). In social constructivism, language is the determinant of the constructed worldview. Reflecting a stratified world there are three layers which are interlinked in realism. As Olsen (2003) puts it, the 'empirical layer' describes what can be sensed; the *actual* domain is observable and is represented by actions, derived from and changed by mechanisms; finally, the *real* layer is based on real effects of causal links.

The aim of the researcher is therefore to evaluate, uncover and construct structures and mechanisms rather than deterministic causalities (Smith, 1998:303). In relation to the author's research objective this means: the link (see Robson, 2002:30) between actions (*for example, companies which apply a niche market leadership strategy*) and outcomes (*these companies get easier access to non-bank financing*) exists by means of mechanisms (*Basel II regulation*), but only in a context sensitive manner (*other parameters like strategic focus of a company*), rather than in a *successionist* way (Sayer, 2000:14), as illustrated in Figure 25.

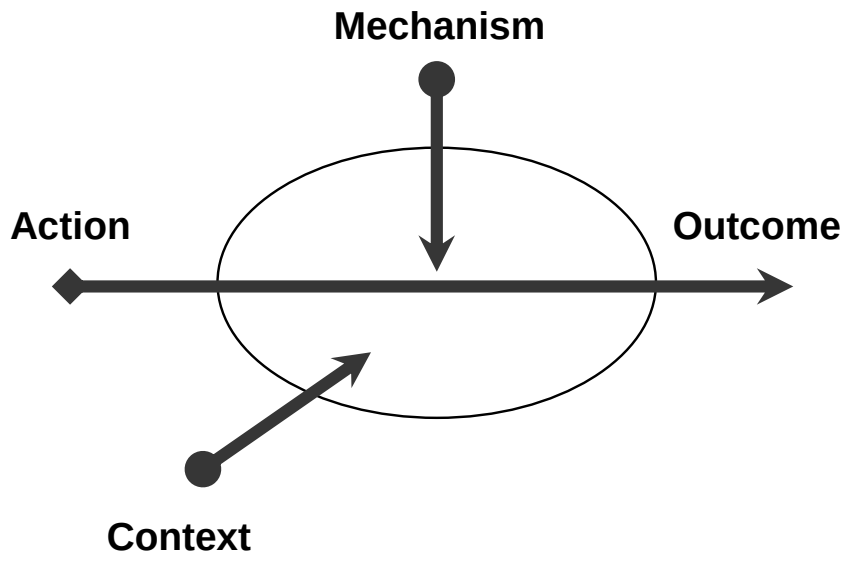

Figure 25 Basis of realism (Robson, 2002:31)

However similar to positivism, realism '*assumes a scientific approach to the development of knowledge*' (Saunders *et al*, 2007:104). The role of the researcher is to find optimal conditions which trigger the mechanism best (Robson, 2002:31). Similar to positivism, these explanations can be tested by a systematic scientific approach. However, contrary to Popper (Smith, 1998:108-111), a theory might not be falsified by just one counterexample; gaining knowledge is a *'continuous improvement process'* (Deming, 1986). Context sensitive *'laws'* may, therefore, not be reproducible. According to realism, social structures are transformed by actions as well. Entities, which might again be unobservable, have the power to generate these outcomes (Keat and Urry, 1982) depending on the context which serves as a trigger.

By means of so-called *triangulation* (Robson, 2002:174, see section 4.2.2), a multiple research design is often used in order to set findings into various perspectives. Contrary to positivism, realism acknowledges operating in open rather than closed system environments (Smith, 1998:45). As with positivism there are derivatives to realism (see Figure 26).

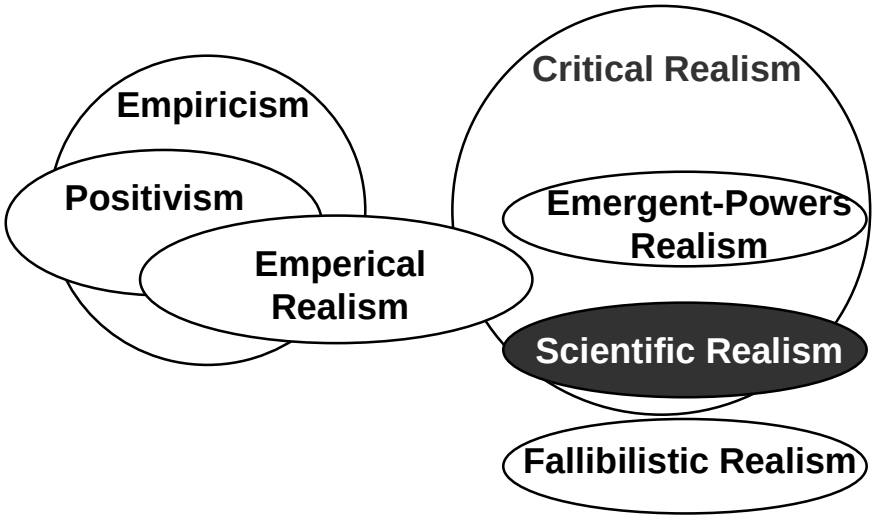

Figure 26 Scientific realism based on Olsen (2003) and Robson (2002)

The so-called *scientific realism* is, as already described, non-atomistic and does not acknowledge a fact / value separation as positivists do. Due to mechanisms triggered by context there are – unlike idealism (Smith, 1998:129-132) – phenomena at an actual level which are not identical with phenomena on the real level.

From the author's philosophical stance the following advantages of a scientific realism approach, regarding the research objective exists: the positivism based articles, critically assessed in section 3, use 'closed system' approaches for their quantitative research. As there is a huge controversy concerning how the effect of Basel II looks, this provides evidence that there is no unitary corporate finance world. Therefore a positivism 'worldview' (Kavous, 2003) seemed to have its limitations on the verge of moving from the Pre-Basel II to the Post-Basel II era. Natural science mechanisms cannot be applied in corporate finance as objects like SMEs and financiers are interlinked on several layers. For example, financiers are searching for financing too – be it by looking for co-investors or by requesting for bank loans in the case of LBOs. Furthermore, mechanisms are context sensitive. The current credit volume limits, for example – a bank's possibility of granting new loans under the Basel-II regulation. In addition, an atomistic construction

is not applicable in a stratified world (*'pool credit loans'* have a different risk profile than the sum of individually assessed loans).
The advantage of realism in corporate finance research is that rather than falsifying a theory, realism seeks for providing evidence. This is different from 'objective' positivism. However, realism means to also apply scientific methods (see research design in section 4.2). Realism is a tribute to a more complex ontology and an 'open systems' perspective.

Using triangulation will enable the author to use these quantitative studies and set them into perspective. Realism acknowledges that mechanisms are context sensitive as they trigger actions to certain outcomes. In the case of corporate finance papers assessed in section 3, the context parameters are: segmentation on SMEs regarding company size, country the SME is operating in and a one- / multi-factor approach.
Another advantage of realism in this specific corporate finance research (here: effect of recently introduced Basel II) is what Sayer (1998:59) calls '*trying to reconcile the objective approach like positivism with a phenomenological subjective*'.
Furthermore, taking a realism stance in Basel II related research enables the dominant ideological structures to be revealed (Bhaskar 1975). For example, Roldan's article (2006), on the positive advances in converting Basel-II into national laws, must be analysed in the light of the author's role as chairman of the European Central Bank – taking elements of social constructivism.

Whereas, positivists are strongly focused on empirical, quantitative methods, realists also rely on qualitative methods in order to gain knowledge. Qualitative analysis is regarded as being scientific: Brewer and Hunter (1989) propose a pragmatic approach to reconcile quantitative and qualitative studies.

Applying such a pragmatic approach leads the author to a specific exploratory sequential mixed-method design, as described in section 4.2.2.

4.2 RESEARCH DESIGN ISSUES

Based on suggestions from Creswell (2003), Robson (2003) and Saunders *et al* (2007) the research design (see Figure 27) will be derived as follows:

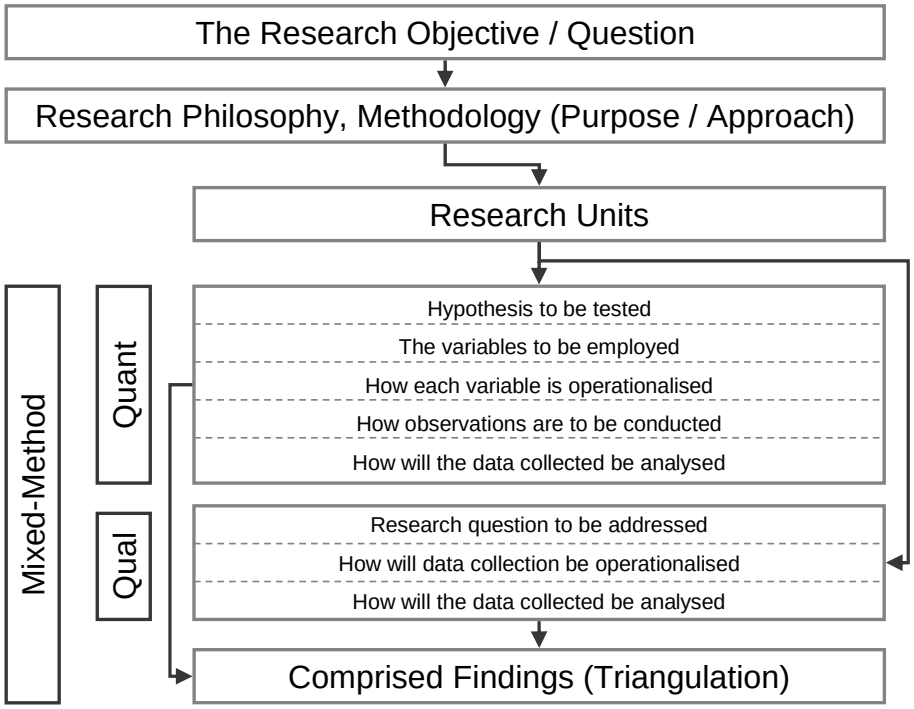

Figure 27 Generic research design deduction

4.2.1 Research Purpose, Question, Type and Unit

The purpose of the DBA research is to establish the effect of Basel II regulation on financing of SMEs in Germany and how SMEs can cope with the effect. Therefore, the research question has to answer what is the effect of Basel II regulation on financing of SMEs in Germany and how SMEs can cope with the effect.

The research type is exploratory in nature as it is one of the first researches to take place after all Basel II elements became law in Germany in 2008. The aim is to explore the effect immediately after. Based on these initial Post-Basel II research experiences it will evaluate how SMEs can cope best. This seems a valid rationale as the early Basel II papers were exploratory in nature as well. Only the consecutive later stage research papers were explanatory based – relating to Pre-Basel II findings based on a year long trend series data from a Pre-Basel II history. Therefore, explanatory research would have little strategic fit because Basel II came into effect only recently. Furthermore, the research can be regarded as probably the first Post-Basel II research to be conducted during the financial crisis, as the quantitative data collection took place just after the Lehman Brothers default. As the spill-over effect of the initial peak of the crisis has to be controlled and the overall dimension could not be foreseen during the analysis phase an explanatory approach would be unsuitable. On the other hand, a mere descriptive approach would not be valid either due to the extensive historic set of Pre-Basel II research to build on.

The research unit comprises SMEs, as well as banks and other 'financiers', such as private equity and providers of alternative forms of finance, like mezzanine or factoring. The SME definition of the European Commission (2003b) will be used in this thesis.

4.2.2 Research Methodology

In order to set this diverging Pre-Basel II research into perspective with the current research, the author will use quantitative and qualitative data gathering and analysis methods as a means of 'triangulation'. The specific mixed method used is 'sequential exploratory' (based on Creswell's 'sequential explanatory', 2003:216) as displayed in Figure 28. As described in section 4.1, this suites best to the scientific realism stance of the author.

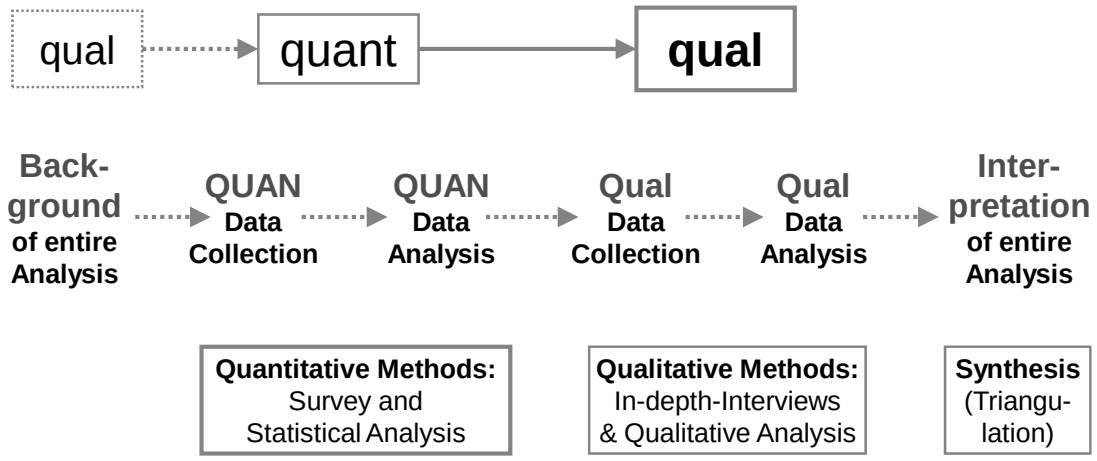

Figure 28 Sequential exploratory design

This triangulation approach seems therefore a valid rationale to limit bias and to enhance reliability (Saunders *et al*, 2007:149). This is justified as follows: according to Saunders *et al* (2007:602), a mixed-method approach is '*when both quantitative and qualitative data collection techniques and analysis procedures are both used in a research design*'.

According to Tshakkori and Teddlie (2003), such a multiple method approach (like mixed-method), helps to extend the trust and interferences made from the research findings in providing more richness. This is in line with Saunders *et al* (2007:147) who state that the first advantage of mixed-method approaches is that '*different methods can be used for different purposes*'.

In the case of the author's study, the quantitative part enables statements of statistical significance, to be made, based on questionnaires (effect-of-cause, see section 4.1); whereas, the qualitative part addresses several aspects which emerged from the quantitative analyses. This could be evaluated in more depth by means of open-ended questions in the semi-structured interviews (causes of causes, see section 4.1). The quantitative analysis provides initial answers to the first part of the research question by testing the hypotheses in general, regarding the effect of Basel II on SMEs and on financiers. In addition, the qualitative part provides deeper insight into the

causes of causes relationship (Olsen, 2003), regarding these hypotheses and it will turn out that the hypotheses were amended by means of the findings from the elite interviews. In addition, the qualitative analysis in section 6 provides in-depth insight into the second part of the research question, how SMEs can cope best with the effect of Basel II. This is in line with Goldberger (1991) who differentiates between statistical significance and 'practical or economic significance'.

The second advantage of a mixed-method approach according to Saunders *et al* (2007) the '*advantage of using mixed methods is that it enables triangulation to take place*'. Saunders *et al* (2007:139) defines triangulation as '*the use of two or more independent sources of data or data collection methods within one study in order to help ensure that the data are telling you what you think they are telling you'*. According to Robson (2002:174) triangulation is '*a valuable and widely used strategy ... it involves multiple sources to enhance the rigour in research*'.
'Data triangulation' (questionnaires and interviews) as well as 'methodological triangulation' (combining quantitative and qualitative approaches) are used (Denzin, 1988).

Initially, a qualitative phase was applied at the background gathering stage of discussing Basel II related issues with personally-known experts from banks, non-bank financiers and SME managers, as proposed by Saunders *et al* (2007:386). The aim was to get a better understanding of the building blocks for the author's own survey.
Furthermore, this helped to set (Pre-) Basel II literature research into perspective. This is in line with other corporate finance research like Schmidt and von Elkan (2006), for example. As a next step a pre-test of the questionnaire was carried out in cooperation with an SME and a financial centric magazine (see section 4.3.3).

In order to comply with ‘mainstream academic finance’ (Ardalan, 2003:199) quantitative data collection and analysis (see section 4.3 and 5) builds the initial phase of the sequential research design. Within the second part of the primary research the findings of the quantitative phases are triangulated with qualitative elite-interviews (or respondent interviews, Saunders *et al*, 2007:312) in the qualitative phase (see section 4.4 and 6). The synopsis of the triangulation is provided in section 7).

This sequential triangulation methodology as described above in this methodology section is used as it fits best with the author’s research philosophy (see section 4.1). Furthermore, this approach tries to circumvent potential flaws of using quantitative or qualitative methodologies solely, especially in terms of limiting bias:

1. If a positivist based quantitative approach is valid, the findings related to the same cause-of-effects relationship (Mahoney and Goertz, 2006, here: ‘effect of Basel II on SME financing’) should be reproducible in a unitary world. However, this is not the case, as described in the literature review (see section 3). Therefore Wahlström (2009), for example, in line with Goldberger (1991), opts for ‘qualitative significance’, which evaluates the cause-of-effects in addition to ‘statistical significance’ in his Basel II research. Quantitative methods, for example, do not pay special attention to important cases like very big SME financiers. This extension beyond mere statistical significance will be regarded as a means of reducing bias. As the criteria of inclusion of ‘special cases’ are defined upfront in line with Saunders *et al* (2007:232), bias is limited as it is less subject to bias of selection.

On the other hand, triangulation by means of qualitative methods enhances the richness and depth of research. According to Miles and Huberman (1994:147), qualitative analysis can deal ‘*with complex networks of events and processes*’. The aim of the qualitative approach is interpretative, the researcher makes interpretation of data by means of a ‘*filter though a personal lens*’.

2. Basel II was set-up using intense quantitative methods in order to regulate the market (BCBS, 2004). Therefore SMEs and financiers have to comply with this statistical approach, even if the statistical approach of Basel II is questioned by Ozdemir (2009), for example, who argues for a holistic validation process, rather than a mere statistical based one. Nevertheless, using qualitative methods only would have little strategic fit related to the worldview of the research units and would be in a way 'per se' a biased approach.

Furthermore, as the vast majority of corporate finance research is based on quantitative methods it is essential to incorporate these too in order to set the author's findings into perspective with the extant literature. The advantage of this mixed-method design is what Saunders *et al* (2007:146) refer to as: 'use different methods for different purposes' which is in line with an international Basel II study by Steiner *et al* (2003), for example covering Germany, France, UK and US. They applied an exploratory sequential mixed method design was well.

4.2.3 Hypotheses Tested

In order to limit bias, the hypotheses are derived from extensive literature research (see section 3), as suggested by Robson (2002). Therefore, for each of the following hypotheses, a-priori evidence in literature is provided in order to explain how they are derived, with little bias involved. A justification of the hypotheses is provided below (see Appendix B.1 for additional information). Linking the initial hypotheses, ex-post, with the findings of the qualitative analysis (see section 6) provides further evidence. Therefore some exemplary elements from section 6 are displayed in this section in order to provide evidence regarding the validity of the initial hypotheses, and to provide perspective on how the initial hypotheses were amended within the synopsis (see section 7).

In addition, the interviews in the background gathering phases as well as the intense pre-testing (publications of the pilot-questionnaire in two publications) provide evidence that the initial hypotheses are a sound based regarding validity.

The hypotheses are expressed in operational terms, which propose a relationship between two specific concepts or variables, in line with Robson (2002).

The three initial hypotheses are:

1. Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.

As stated above, the Sachverständigenrat (2005), an advisory committee to the German government, argues that the famous 'house bank principle' is eroding (Sachverständigenrat, 2005). The financing situation changed when guarantees of the state-owned Landesbanken or Sparkassen were removed (Monti, 2003). A reduction in credit supply (Reize, 2007) and the rise in credit rates (Kerle, 2006) on the verge of Basel II are indicators that this fundamental German 'house bank principle' is deteriorating, as already discussed extensively in section 3. BdB (2005) and Sandvoß (2007) explain, from a bank and bank association point of view that the role of the bank might shift from a 'sole provider of money' to a 'facilitator of financing'. As stated in section 6.5, the findings from the qualitative analysis support this view. In particular, SMEs argue that credits will become dearer as Basel II is used to improve margins. They believe that the relationship between the banker and the entrepreneur becomes 'mechanistic' in contrast to the former trusted 'relationship banking'.

2. SMEs can cope best with the effect when they:

a) proactively engage in rating and improve the parameters, or

b) they adjust their strategy as stated in hypothesis 3.

Rating seems to act in a twofold way: it improves the access to bank loans and non-bank investors enforce a positive effect on ratings, according to Nitschke and Kuper (2007). Already, 12% of the respondents from corporations of this explanatory, quantitative research believe that incorporating private equity will improve their Basel II rating. Approximately one quarter of the companies under review already regard private equity as a financing option. They ascribe this to the low equity ratio of German companies and the respective poor rating. 30% of the companies who regard Basel II as a risk are in favour of private equity. Only 25% of the Basel II critics state being sufficiently financed in relation to 46% of the whole sample.

Again, the qualitative analysis provides evidence regarding hypothesis 2.a. As explained in detail in section 6.6; specifically, the 'good SMEs' became increasingly aware of rating parameters and aligning their focus accordingly by providing enhanced transparency and by improving financial management which is regarded by the interviewed financiers as a key-issue. 'Good SMEs' realised that 'improving rating means improving business'.

Hypothesis 2.b is directly derived from hypothesis 3 as an alternative to rating based bank-loans and is justified below.

3. Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

Whereas there had been little non-bank investment in SMEs in the past, Basel II is estimated to be a driver for change, according to Ackermann (2003). Based on the author's background gathering and the author's professional experience, a growth strategy and exit orientation will be decisive.

On the grounds of a quantitative, questionnaire-based survey, Hollasch and Berg (2007) argue that SMEs, in particular, are becoming increasingly interested in alternative forms of financing. This is in line with Pre-Basel II findings and suggestions by Hartl (2002). According to Ries and Trout (2000) a sustainable unique selling proposition (henceforth USP) is a prerequisite for gaining a competitive edge in order to reach a leading (niche) market position. The elements of USPs manifest in the indicators of company potential and are based on Nagl (2003) and Jobber (1995). Based on elite interviews, Hedtstück (2007) points out that private equity companies foster the development of SMEs with a focus on growth rather than cost cutting. Growth is the major motivation for going public, as Frey and Kuhn (2007) point out. This is an indication that growth is important. Using BVK data, Cowley (2002) states that 81% of VC fund investments go to companies with less than 100 employees. Hollasch and Berg (2007) argue that about one-third of all SMEs gathered experience with alternative finance, such as private equity. According to Kuhn and Frey, 24.1% of the major German SMEs consider going public. This is an indication for a stronger exit orientation of SMEs.

The findings from the literature research correlate with the findings from the background gathering phase and the empirical qualitative research. As stated in section 6.7, the findings provide evidence that the ‘company strategy focus’ became unconsciously ‘private equity affine’ and the focus on valuation is an indicator regarding a growing openness towards non-bank financiers with Basel II as the trigger. Figure 29 illustrates the hypothesis deduction process.

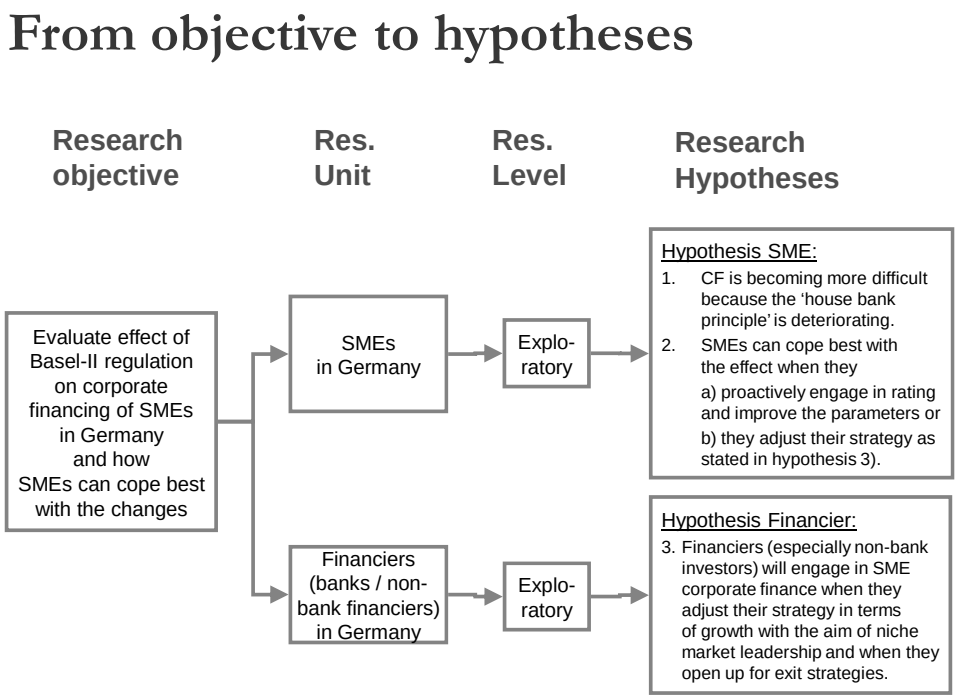

Figure 29 Hypotheses derived from research objectives

4.2.4 Variables Employed and Operationalised

The author uses the same structured deductive approach regarding the selection of variables as explained in section 4.2.3. The aim of this top-down deduction process from hypotheses to latent variables and to manifest variables is in order to limit bias. This approach is in line with Blumberg *et al* (2005) that investigative questions are needed in order to answer satisfactorily each research question and to meet each objective.

Latent as well as manifest variables are dependent variables. Latent variables are meta-variables which are not observed directly but 'manifests' in manifest variables (henceforth: indicators). 'Ease of getting a loan' and 'changes in affinity of SMEs to non-bank financiers' will serve as latent variables for the first hypothesis as these are directly related to changes in the 'house bank principle' (Sachverständigenrat, 2005). The combination of

various rating-related categories serves as latent variables regarding the rating scale, according to BCBS (2004).

The ‘general investment attitude towards SMEs’, a ‘business vision for growth’, and a ‘willingness for incorporating new financiers’ comprise latent variables regarding hypotheses 2.b and 3, as indicated above.

A detailed justification of the latent variables used, regarding the three hypotheses based on the literature review in section 3, can be found in Appendix B.2. The justification regarding the SME related manifest variables can be found in Appendix B.3 and the justification of the respective financiers’ indicators is provided in Appendix B.4.

Figure 30 to Figure 32 show how each latent variable manifests, by means of a set of indicators. For example, the usage of certain financial instruments, such as ‘formal supplier credits’ (see Wilson, 2004, for example, on the importance of supplier credits) or ‘factoring’, are indicators regarding the difficulties of an SME in getting a bank loan according to BWI (2002).

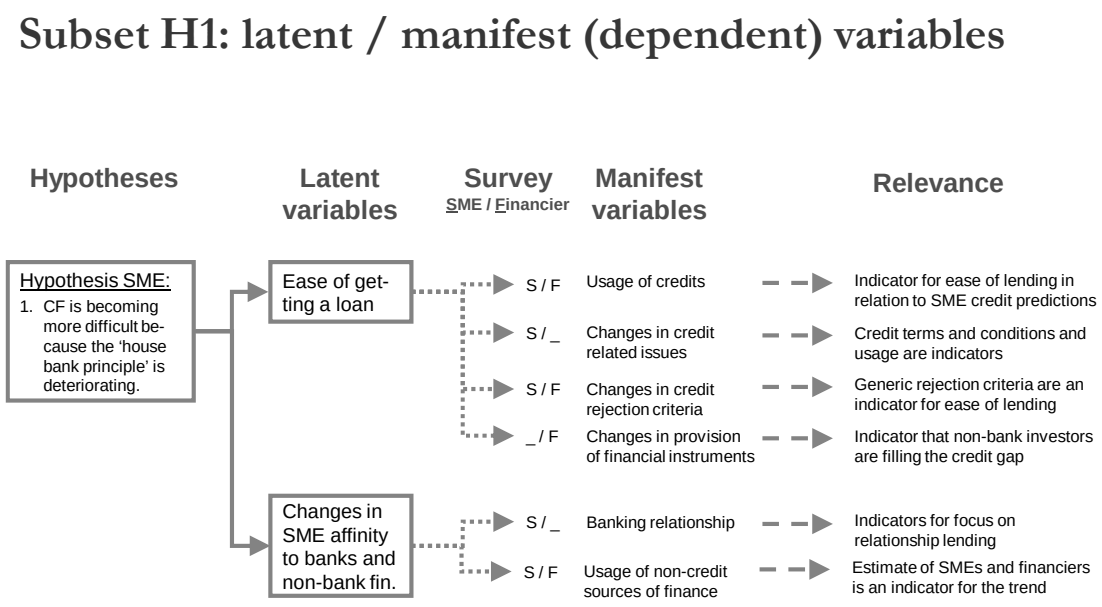

Figure 30 Variables regarding hypothesis 1

Subset H2: latent / manifest (dependent) variables

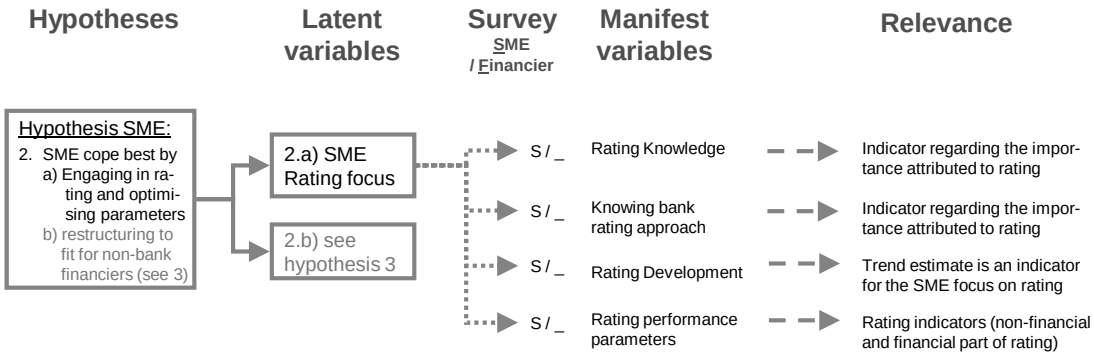

Figure 31 Variables regarding hypothesis 2.a

Subset H3: latent / manifest (dependent) variables

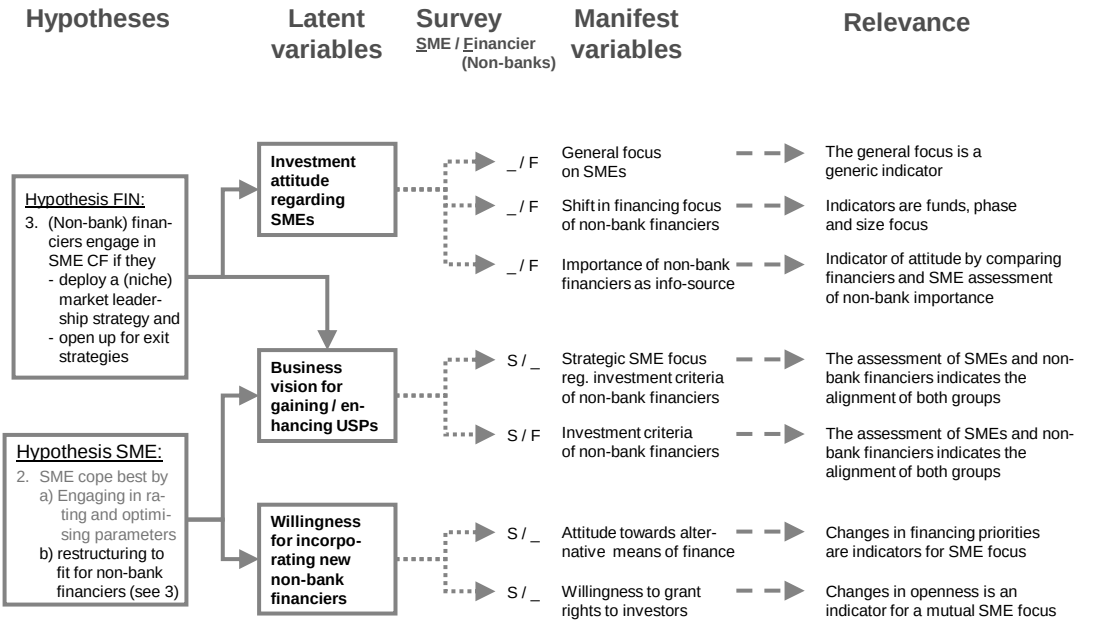

Figure 32 Variables regarding hypotheses 2.b and 3

In order to get a holistic picture, the variables employed consist of behaviour variables (like financing sources), opinion variables (such as opinions about financing trends), and attribute variables (such as size of funds under

management) using terminology by Dillman (2000). On several occasions indexes were built when the combined measure of variables comprises an indicator for a latent variable. The attribute variables are independent; the others dependent in a ‘quasi experimental’ setting (Robson, 2002:87) with Basel II regulation being used as an ‘instrument’ in order to explain the effect of Basel II.

The variables mentioned above build the basis for the mathematical models set up and tested as described in section 5. The following implementation mode was chosen (see sections 4.3 and 4.4) in line with the sequential exploratory approach as it fits best with the author’s philosophical position, the research objective and the consecutive data analysis in relation to other Basel II research.

4.3 QUANTITATIVE RESEARCH DESIGN

Following an initial background gathering (see section 4.3.1), the sample frame was defined (see section 4.3.2) before the quantitative data collection (see section 4.3.3) took place by means of self-administered questionnaires (Robson, 2002:236). This is in line with other corporate finance research according to Aziz and Humayon (2006) who evaluated 180 surveys. The questionnaires can be found as additional information in Appendix C.

Within the quantitative analysis, statistical procedures were used in order to comply with the quantitative mainstream in the financial research. That means for each of the three hypotheses, one or two models (SME and financier) were set up and tested.

4.3.1 Background Gathering Phase

The background data collection phase comprised literature research focusing on academic journals as well as special interest journals. This was complemented by unstructured elite interviews with selected opinion leaders as qualitative methods are good at capturing meaning, process and context (Espíndola, 2007). The aim of this phase was to refine the initial research hypotheses and variables and to reduce bias.

A purposive sample (Saunders *et al*, 2007:230) was taken from the author's professional database in order to select the interviewees as random sampling would have been inappropriate in this early phase due to the effort-outcome relationship. This is in line with academic literature.

As this is the early background gathering phase and various measures (see above and below) were undertaken to limit bias, the danger of biased influence on the research methodology and outcome seems limited.

Owing to this early brainstorming phase the informed consent was brief and informal as was data collection. It consisted of taking notes rather than taping the interviews. Anonymity was granted as the feedback from the background gathering would not be entered directly into the research.

4.3.2 Sample Frame regarding Quantitative Research

As one of the prime objectives of this research is to consider Basel II from an SME's, as well as from a financier's, perspective, these two populations had to be considered in the data collection and analysis. In terms of SMEs, 3,000 addresses were initially randomly selected from the 'bedirect' database (see section 4.3.3) in order to avoid the two reasons of sample selection bias, as mentioned in Heckman (1979:53): self-selection by the individuals being investigated and sample selection decisions by analysts.

The author is grateful to ‘bedirect’ who provided the random SME addresses. ‘Bedirect’ is a joint venture between Creditreform and AZ Bertelsmann, the biggest address broker in Germany. Creditreform is an association founded, in 1879, to protect its members from ‘harmful credit’ (Creditrefom, 2008). It comprises of 165,000 members in Europe who can get creditworthiness data from every corporation from 130 Creditreform locations in Germany. The evaluation is based on official German registers in which every corporation and therefore every SME, according to the classification of the European Union (European Commission, 2003b) which is used in this research, is covered. Creditreform is one of the most widely used databases in (academic) finance research in Germany (see literature review in section 3). For example, researchers like Dietsch and Petey (2004), Ehrhardt and Zimmermann (2007) or Schäfer *et al* (2006) based their research on Creditreform data.

Regarding the sampling frame of financiers, the author relied on associations; this is in line with the majority of research studies in Germany that were under review (see again literature review in section 3). In line with other German Basel II research, the member list of the following associations was used regarding financiers: banking association BdB (like Sandvoß, 2007, for example), private equity association BVK (Frommann, 2006a) or Suhl and Weber, 2005, for example) and finance associations, such as leasing associations (BDL, such as SFS, 2006) or factoring associations (DFV), regarding alternative forms of finance (see Bruch, 2007, for example).
This sample frames can be regarded as comprehensive in terms of SME financing: according to a statement on request from a BVK representative, for example, the percentage of members regarding SME financing is nearly 100%. As suggested by Robson (2002:254), the marginal difference mentioned above regarding the SME and financier samples can be neglected. He states that Random Digital Dialling (RDD) is sufficient for statistical significance, although less than 98% of adults are listed in a phone

book. In line with other researches in renowned journals, like the Journal of Finance or Journal of Banking and Finance, such as those by Degryse and Ongena (2005), Dietsch and Petey (2004), Faccio and Masulis (2005), Carey *et al* (2003) or Leary and Roberts (2005), a random selection is stated in the author's thesis as well. As the whole population from these associations is taken as sample it is per definition ensured that no section of the population is (systematically) left out. Therefore the second reason for sample bias according to Heckman (1979) does not apply as well. The acquisition of data was very costly, as only one database was free of charge. Therefore, it was decided to send the data questionnaire out to a subset of SMEs in order to comply with the budget of 10,000 euros for the: acquisition of data, carrying out the mailing, follow-up calls and the travel expenses for the qualitative interviews. Therefore, all financier data sources were included (524 in total) and the same number was randomly selected from the SME database provided by 'bedirect'.

4.3.3 Implementing Quantitative Data Collection Methods

The survey was conducted by means of self-administered postal questionnaires (one for SMEs, one for financiers) in order to set these findings into relation with the research hypotheses and other Pre-Basel II research. According to Sue and Ritter (2007:7) postal surveys have the advantage of low cost, wide geographic reach, no interviewer bias and possible anonymity. This outweighs the disadvantages of low response rate and little affectivity regarding contingency questions, as a two-step pre-testing process was applied and the findings would be triangulated with face-to-face-interviews. This allows the posing of complex questions according to Sue and Ritter (2007:7). According to Saunders *et al* (2007:138) this comprises the mainstream approach in deductive phases. Furthermore this is in line with other finance / Basel II research, as questionnaire-based surveys were carried out in all but one of the primary research articles under review.

Robson (2002:227-268) states that self-administered questionnaires are good when the researcher can be confident the questions will be interpreted in the same way by all respondents. This can be reassured by intensive pre-testing as mentioned above.

Both questionnaires have a funnel design (Robson, 2002:227-258), starting with a warm-up phase on general issues, primarily using dichotomic questions (funds usage, for example) or open questions (age of the company, for example). In order to provide evidence for the three hypotheses described in section 4.2.3, the latent variables (see again section 4.2.3) were chosen according to their suitability for providing evidence regarding the hypotheses (see Appendix B for a detailed justification). The two questionnaires therefore contain a set of manifest (dependent) variables, which serve as indicators regarding the respective latent variables.
The survey gathers cases of manifest variables before and after Basel II (henceforth, Pre-Basel II and Post-Basel II) came into effect. These manifest variables build the base for the respective mathematical models (described in section 4.3.4) needed to answer the research question (stated in section 4.2.1), by testing the three hypotheses using the appropriate statistical tests.

When the questionnaires were finalised in autumn 2008 the financial market crisis was at its peak. Deferral of the research would not have been appropriate as no expert could estimate when the crisis would be over. In order to limit bias by means of a spill-over effect some ‘control questions’ were introduced. Participants were asked, after relevant question modules as a kind of control question, the extent to which changes in their assessment from the Pre- to the Post-Basel II era could be ascribed to Basel II. Furthermore, participants were asked about the impact of various effects, such as Basel II or the subprime crisis, on SME financing in general.
In line with the literature under review the questionnaires contain sections on background data, performance parameters (SMEs), company strategy (from

an SME and bank / investor view), financing focus (SME) and strategies (bank / investor) in relation to the three hypotheses tested. This structure is used to reduce individual bias and to enable a better comparability regarding other research papers too.
The bulk of the questions concentrate on collecting the manifest variables by using Likert scales which complies with the majority of respective (German) Basel II primary research. In order to evaluate the Basel II effect, for each variable the value prior to Basel II and after Basel II came into force was evaluated (like usage of financial sources on a Pre- and Post-Basel II basis).

A four item Likert scale is used in line with other studies in the corporate finance sector in Germany (Schalast and Barten, 2008, for example). This 4-point Likert scale variant ensures a good compromise between being specific and sensitive (Lee, 2007a). Sue and Ritter (2007, 51) argue that a 4- or 5-point Likert scale will be most suitable. The Likert scales are coded in ascending order from 1 to 4 as suggested by Saunders *et al* (2006:378). Time series data (Gujarati, 2003:25), are used, for example, for changes in revenues. The questionnaire contains category questions such as sector, rating questions such as usage of financing sources, and quantity questions such as size (Saunders *et al*, 2007:370-372). The wording is in line with best practices suggested by Saunders *et al* (2007:376), such as avoidance of embarrassment and leading phrases.

The final questionnaire consists of seven pages, which is in the range of four to eight pages suggested by Saunders *et al* (2007:381), although it seems that in corporate finance some are more extensive, probably because of the professional receptors: Cumming and Johan (2007), for example, used a 13 page survey to evaluate the effect of regulation on private equity. On the other hand, Frey and Kuhn (2007) stuck to the minimum of four pages. The layout of the questionnaire is in line with best practices summarised by Saunders *et al* (2007:383).

The deductive approach ('from latent variables to manifest variables', see section 4.2.4) is used to enhance validity according to the classification by Blumberg *et al* (2005). Content validity is ensured by leading back from manifest variables to latent variables. Measurement questions related to the indicators ensure predictive validity and construct validity as the categories are linked to other Basel II research categories.

A two-step pre-testing phase, as suggested by Robson (2002:229), was applied in order to ensure a high validity and reduce bias by means of an iterative refinement of the questionnaire:

1. A kind of informal pre-test was made within a purposively selected group of SMEs and financiers from the author's professional network.
2. Two pilot-surveys in cooperation with two target group magazines were carried out as a means of pre-test.

After a discussion with the editor in chief of Markt & Mittelstand an article was published with reference to the author's research project within issue 7/2008. Markt & Mittelstand is one of the leading magazines with a focus on Mittelstand and has a circulation of 87,039 issues (and 155,000 readers, according to media analysis by IVW, M&M, 2008). With a reach of 47.3% it ranks second, close behind the leading Magazine of the Chamber of Commerce with 48.8% (TNS Emnid, 2003). Within the article a reference was made to the Global Value Management (GVM) internet address, the homepage of the author's corporate finance consultancy on which the draft questionnaire was published.

The pilot study was announced through a renowned financial news service: vc-facts is the publisher of two widely distributed newsletters to the corporate finance community comprising the vc-facts newsletter and the M&A newsletter (issue 35/2008). Within each online newsletter the research project was introduced containing a link to the questionnaires which were published on the author's homepage.

The one-off study and consequential large investment in both time and money lead to an online-based pre-test format in order to ensure economy and effectiveness. Coverage error (Sue and Ritter, 2007:3) seems low as the professional member sampling unit is regarded to have internet access. Besides economy-of-delivery the online / web-based variant has the following advantages according to Sue and Ritter (2007). Speed, direct data entry and worldwide geographic reach. Therefore, various (practitioner) researchers make use of online surveys, such as Nitschke and Kuper (2007), even for main parts of the research. The pilot questionnaires were published on the homepage of the author's corporate finance consultancy GVM (see Figure 33). The article in Markt & Mittelstand, as well as in the corporate finance newsletters (M&A news and VC / PE news), refers to the GVM homepage.

Figure 33 Publications of the pilot questionnaires on the GVM homepage

As suggested by Bell (2005) a short follow-up survey (telephone interview with a number of randomly selected participants) was conducted in order to get feedback on areas of improvement. For example, ambiguous questions

or feedback on whether all relevant topics were covered. To illustrate further, the understanding of technical terms were checked for. As a result, liquidity related ratios were left out and the focus was placed on earning ratios because liquidity ratios were interpreted differently (in contrast to the earning ratios used). Carrying out these test phone calls was conducted through a purposive sample of respondents from the pilot study.
For example, the layout was changed: Pre- and Post-Basel II questions referring to the same issue were placed side by side in one table rather than in two consecutive ones. Furthermore, questions that were too detailed regarding financial performance were left out as SMEs were reluctant to answer them.

In order to lower the disadvantages of self-administered questionnaires, such as *'danger of ambiguities and misunderstanding'* (Robson, 2002:233), the author established a hotline via telephone and e-mail.

As suggested by Jones (1995), a multi-level mail process was used to enhance the rate of response, starting after the first week (see Saunders *et al*, 2007:393): postal mailing with questionnaire, then an e-mail reminder (if e-mail was available), and/or selected follow-up calls to 100 people on a random basis. In addition, during these calls the understanding of technical terms was checked. This showed that the technical terms were well understood, which was a result of the intensive pre-testing mentioned above. This multi-level procedure is in line with other Basel II research by practitioners like Kolbeck *et al* (2002). Furthermore, in line with suggestions by Edwards *et al* (2002) an incentive was given ('text marker') and a response envelope was enclosed.
Mails were sent out at the beginning of the week with no public holiday in it in line with Saunders *et al* (2006:391). However, there is the danger of so-called response bias which has to be checked for: Creswell (2003:160), for example, suggests contacting non-respondents and cross-checking their

responses with respondents. If late respondents are close to the feedback of late respondents, this is an indicator that late respondents can be regarded as non-respondents. Yet, this has not been the case.

In order to enhance reliability (Robson, 2002:101) data typed in was checked by a separate person in order to check data for errors (Saunders *et al*, 2007:407) with respective 'data cleaning' activities (see Sue and Ritter, 2007:106-107), like obviously transposed digits.

This questionnaire-based implementation mode was chosen because it is in line with the majority of corporate finance research and addresses a broad range of questions. This gave viable indications for the consecutive qualitative phase (Robson, 2002:233). In line with other Pre-Basel II research probability sampling (Sue and Ritter, 2007:28-31) was used as this allowed for making statements of statistical significance with no sample bias, as explained in section 4.3.2.

Regarding the quantitative phases, Saunders *et al* (2007:213) suggests checking for refusals to respond, ineligibility to respond, inability to locate respondents and respondent located but unable to make contact, in order to cope with bias. Due to the selection by professional address brokers the last three issues mentioned by Saunders *et al* (2007) should not apply to a great extent, as the address broker updates the database regularly. According to deVaus (2002) the main reasons for missing data are: non-response (unit and item non-response, Sue and Ritter, 2007:35), did-not-know, missed by mistake, or as Saunders *et al* (2007) add, leaving part of the questionnaire blank implies an answer too. The latter was hardly the case. The author's strategy regarding missing values is replacing them by the mean in line with other Basel II related research. As the basis for the self-administered questionnaire is a probabilistic sample the author contacted some non-respondents (refusals, see above) from the sample and tried to get the questionnaire filled in for validation reasons. Therefore, these initial non-respondent responses were compared to the 'normal' responses. In general, the answers did not produce any major differences.

4.3.4 Implementing Quantitative Data Analysis

From the background gathering phase and the literature review (see section 3), three hypotheses had been derived in order to explore the effect of Basel II on corporate financing of SMEs. An important part of the research gap (see section 1.1) is to consider the effect of Basel II from the SMEs' and the financiers' perspectives in one single comprehensive piece of research. Therefore, relevant aspects need considering from both sides: on the one hand, SMEs are questioned about their assessment of a specific aspect like 'rejection criteria regarding bank credits from a Pre- and Post-Basel II perspective'; and, on the other hand, financiers are asked to give their opinion on the same topic. In addition, several aspects relate either to the SMEs' or the financiers' part of a specific hypothesis; for example, the development of credit rates of the subjects company which is an SME item only.

Based on these variables and variable formulation, a specific model is introduced for each hypothesis with respect to either the SMEs or the financiers. The three hypotheses are (see section 4.2.3):

- Hypothesis 1 (henceforth, **H1**):
  Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.
- Hypothesis 2.a (henceforth, **H2**):
  SMEs can cope best with the effect when they proactively engage in rating and improve the parameters.
- Hypothesis 2.b and Hypothesis 3 (henceforth, **H3**):
  Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

Hypothesis testing is used as a means of '*confirmation or refutation of … theories on the basis of sample evidence*' (Gujarati, 2003:8). Within a first step, two indexes for each hypothesis were created, one index for SMEs and one for financiers (with the exception of H2, as H2 is related to SMEs only). Each index consists of several items which are derived from the variable selection and justification provided in section 4.2.4. The meaning of these indexes is to create a 'measure' for each index. In the case of H1 this relates to creating an index which provides a possibility to measure the extent of the 'deterioration of the house bank' principle.

The indexes related to SMEs are using items of the returned SME questionnaires only. The financier indexes are, likewise, just using items of the returned financier questionnaires (see Appendix C). In a next step, the index values related to the Pre- and the Post-Basel II assessment are compared to determine the influence of Basel II on the indexes and hence on the respective hypotheses.

As open questions are the focus of the qualitative part, the coding of the questionnaire is straightforward so as to facilitate consecutive coding regarding data analysis, as described below. Following Saunders *et al* (2007:415), existing coding schemes are used for categorical data, for example, the industrial classification. Other data, such as the ratio data variable revenue will be coded by transferring the values into categorically ranked data, in line with the SME classification of the European Union (European Commission, 2003b). Open ended Likert scale questions are coded on a scale from 1 to 4, in ascending order, for providing evidence regarding the hypotheses.

The codebook (see, Sue and Ritter, 2007:102-104), regarding the variables used, can be found in Table 48 and Table 49 within Appendix D. In general

the data is split into questions for SMEs and questions regarding financiers (FIN). All observed variables will be denoted by $X^{SME,i}$ and $X^{FIN,i}$. Where $X^{SME,i}$ refers to *'question module i'* for SMEs and $X^{FIN,i}$ to *'question module i'* for financiers. 'Question module' refers to question sections in the respective SME or financier questionnaire (see Appendix C), for example, 'bank credit financing' or 'non-bank financing'. Each line in the codebook (see Appendix D) provides for *'item j'* (which is the j[th]-question in *'question module i'*) a description of the associated 'question module item', the number and description of the item and the resulting variable specification used in the hypotheses testing sections 5.4 to 5.6.

Furthermore, each question-module contains several items which are related to a specific question in the questionnaire which was filled-out by the participants.

As discussed in section 4.3.3 the variables consist primarily of Likert scales, for example, 'importance of private equity as a means of finance'. In many cases the answers are two-fold, referring to Pre- and Post-Basel II assessments of the survey participants, regarding topics like the 'importance of the usage of mezzanine'. To differentiate between this Pre- and Post-Basel II assessment, the following notations will be used:

X_j := Answer to *'item j'*

$X_{j,p}$:= Answer to *'item j'* referring to the respective Pre-Basel II assessment of the subject ($p = past, i.e. Pre - Basel\ II$)

$X_{j,f}$:= Answer to *'item j'* referring to the respective Post-Basel II assessment of the subject ($f = future, i.e. Post - Basel\ II$)

Together this results in variables of the form $X_{j,f}^{SME,i}$, for example, referring to the Post-Basel II evaluation of the j-th item of the i-th question module for SMEs.

This leads to the following formulation:

Let $Y_{Hn,p/f}^{TYPE}$ denote the index value for Pre- and Post-Basel II periods for '*Hn*' (which is hypothesis n), with '*TYPE*' = '*SME*' (for SME index) or '*FIN*' (for financier index).

Then $Y_{Hn,p/f}^{TYPE}$ is defined as the sum of the values of the m items, $X_{j_1,f/p}^{TYPE,i}, \ldots, X_{j_m,f/p}^{TYPE,i}$, included in the index, hence:

$$Y_{Hn,p}^{TYPE} := X_{j_1,p}^{TYPE,i} + \cdots + X_{j_m,p}^{TYPE,k}$$

$$Y_{Hn,f}^{TYPE} := X_{j_1,f}^{TYPE,i} + \cdots + X_{j_m,f}^{TYPE,k}$$

Thus, the delta between Pre- and Post-Basel II values is defined as:

$$\Delta Y_{Hn}^{TYPE} := Y_{Hn,f}^{TYPE} - Y_{Hn,p}^{TYPE}$$

The choice of the items $Y_{j,p}^{TYPE,i}$ contained in the indexes is based on the research design, as explained in the section 4.2.4, where the latent and manifest variables employed were introduced. The stated manifest variables (dependent variables) are included into the indexes as these can be observed, and they serve as indicators for the latent variables, which provide evidence for the respective hypotheses as described and justified in section 4.2.4. The distinct company answering the questionnaire (either SME or financier) is the 'independent variable'; the variables used in the indexes are the dependent ones.

For each item it has to be decided if a positive shift from Pre- to Post-Basel II values supports the hypothesis or objects it. If the increase is supporting the hypothesis the influence is referred as being ‘positive’ and in the case of an objection, it is ‘negative’.

This means in relation to H1, for example, if SMEs believe in an increase of ‘generic credit rejection criteria’ from a Pre-Basel II to a Post-Basel II perspective (‘positive shift’), this will support H1. On the other hand, a decrease in ‘credit supply by banks’ (‘negative shift’) from a Pre-Basel II to a Post-Basel II perspective will also support H1 (‘deterioration of house bank principle’).

‘Negative shifts’ are included into the model in a coherent way, the values were inverted. Negative shifts occur in several, four item, Likert scale instances. Therefore, the values of these variables were transformed in order to achieve the results by inverting the index values: 4 → 1; 3 → 2; 3 → 2; 1 → 4. That means that a decrease from a Pre- to Post-Basel II assessment (‘negative shift’) will – due to the transformation – have a positive delta value and will therefore support the respective hypothesis. In case the Likert scales have more than four, a transformation to a range from ‘1’ to ‘4’ was conducted.

In order to test H1, H2 and H3, the Pre-Basel II and the Post-Basel II index values for H1, H2 and H3 were checked to determine whether they are significantly different. Regarding SMEs, separate models are set up for H1, H2 and H3. Financiers’ models are introduced for H1 and H3 only, because H2 deals with the rating affinity of SMEs from an SME perspective, as shown in section 4.2.4. Missing values were replaced by the means of the respective variables, in order to achieve a constant sample size on which the analysis is based, this is in line with other financial research (see section 3).

The data analysis is thus carried out by using the appropriate statistical tests: the author's quantitative research design on Basel II can be compared to a non-blinded 'experiment' (Robson, 2002:95-162), with no control group (Lee, 2007b), as all SMEs are subject to Basel II. The 'instrument' applied is the Basel II regulation. Some research papers, e.g. Dietsch and Petey (2004) or Altman and Sabato (2005), use the same methods when they developed new models of research in the Pre-Basel II phase. As discussed in section 4.4.3, a major proportion of questions in the data collection section take the form of a Likert scale, which means that the underlying variables of the 'scale questions' (Saunders *et al*, 2007:409) are categorical ordinal data (Gujarati, 2003:31). In order to make use of similar statistics with quantifiable data, in terms of descriptive statistics (like means etc.), the author follows Blumberg *et al* (2005). They argue that these data can be analysed as quantifiable interval data, because such data are likely to have similar gaps between the data values.

According to Stutely (2003), a minimum sample size of 30 for each category (here: SME and financiers) will generally be sufficient for statistical analysis. According to the '*law of large numbers*' (Saunders *et al*, 2006:601) '*samples of larger absolute size are more likely to be representative of the population … in particular the mean calculated for the sample is more likely to equal the mean of the population, provided that the samples are not biased*'. As discussed in section 4.3.2, the samples were randomly selected from a probabilistic sample frame and are therefore not biased. As the sample size in this thesis is approximately twice as high, the rate of the author's quantitative data collection is therefore sufficient and is in line with the research articles under review (see section 3). Based on Central Limit Theorem (henceforth CLT, see Train, 2009:245) within the following section, normal distribution is assumed as Saunders *et al* (2006:2010-2011) states: '*Statisticians have proved that the larger the absolute size of a sample, the more closely its distribution will be to normal distribution and thus the more robust it will be. .. This relationship known as the central limit theorem occurs*

even if the population from which the sample is drawn is not normally distributed. Statisticians have also shown that a sample size of 30 or more will usually result in a sampling distribution for the mean that is very close to a normal distribution'.

The CLT in an abbreviated manner implies the following: given that $X_1, \dots, X_n$ are independent, they have identically distributed random variables:

$E(X_i) = \mu_x$ *and* $var(X_i) = \sigma_X^2$ *where* $0 < \sigma_X^2 < \infty, \forall i = 1, \dots, n.$

Then: as $n \to \infty$*, the distribution of* $\frac{(X_i - \mu_x)}{\sigma_{\bar{X}}}$*, with* $\sigma_{\bar{X}}^2 = \frac{\sigma_X^2}{n}$, becomes arbitrarily well approximated by the standard normal distribution.

Tests of significance are used as they are '*a procedure by which sample results are used to verify the truth or falsity of a null hypothesis*' (Gujarati, 2003:129). In addition, basic statistics, histograms and Q-Q plots in sections 5.4, 5.5 and 5.6, are presented in order to analyse whether the underlying data is normally distributed.

To check if the Pre- and Post-Basel II index values are significantly differing, two different approaches are proposed. First, under the assumption of normally distributed index data, paired t-tests (in case of equal variance for Pre- and Post-Basel II index data) or the Welch t-tests (for the case of non-equal variances) are applied. Both tests employ the Pre- and Post-Basel II mean index values and test whether they can be regarded as equal.

The second approach which is proposed and used, in case the assumption of normally distributed index data could be questioned, is a Wilcoxon signed-rank test. These tests are applied to safeguard the findings as this '*is a nonparametric equivalent of the paired two-group t-test*' (Robson, 2002:441). A significance level of 95% was chosen, which is used in all the finance

research articles mentioned in this thesis, and is typical for social science research in an area like finance (see Robson, 2002:409).

Paired t-tests test the hypothesis that the mean of the Pre-Basel II index values is equal to the mean of the Post-Basel II index values (H_0), against the alternative hypothesis (H_1) that the difference in means is not equal to 0.

Paired t-test:

$$H_0 : \mu_p = \mu_f \qquad H_1 : \mu_p \neq \mu_f$$

Analogues, the Wilcoxon signed-rank test tests the null hypothesis, that the mean of the Pre-Basel II index values is greater or equal than the mean of the Post-Basel II index values (H_0), against the alternative hypothesis (H_1) that the mean of the Post-Basel II index values is greater than the mean of the Pre-Basel II index values.

Wilcoxon signed-rank test:

$$H_0 : \mu_p \geq \mu_f \qquad H_1 : \mu_p < \mu_f$$

The model building and testing is at the core of the quantitative analysis in section 5. In addition, at the beginning of this quantitative analysis, descriptive analysis is used in order to set the findings in relation to the sample frame of other research projects. Model building is the dominating method regarding Basel II research under review in this paper; to illustrate, in section 3, 38% of the articles under review used model building.

Furthermore, analysis of correlation (Gujarati, 2003:23) and regression (Gujarati, 2003:42) was undertaken in line with other Basel II researchers, like Altman and Sabato (2005), for example.

Therefore, regarding multiple linear regression, it is evaluated if the changes in the five model index values could be explained by factors characterising the SMEs or the financiers. In order to achieve this, a variety of possible factors influencing the hypotheses models were chosen. Among these factors those are extracted which provide the 'best' linear regression model, according to the so called 'Akaike Information Criterion' (henceforth, AIC, see Train, 2009:367). In principle, the AIC measures the fit of the considered model (see Gujarati, 2003:219) but also takes into account the model complexity by introducing a penalty term depending on the number of variables used (Akaike, 1974).

Regression diagnostics is carried out by means of F-statistic (see Gujarati, 2003:219). This means that the F-test using the null-hypothesis that all variable coefficients are zero (Robson, 2002:442) will be rejected (or not). The multiple R-squared measure is used to evaluate the variation in the data explained by the model (Gujarati, 2003:81-87).

In order to evaluate the fit of the proposed model it is necessary to take a look at regression diagnostics. Therefore the residuals of the model are plotted against the fitted values. A second important part is to check the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Q-Q plots and Scale-Location plots of the standardised residuals, against the fitted values, are provided. It is checked if the residuals in the Q-Q plot are reasonably close to the Q-Q line which indicates normality of those. Furthermore, within the Scale-Location plot, it is checked if no strong variations among the variances can be detected. Cooks distance of each residual will be illustrated too. The Cooks distance is a measure of the influential power of an observation to the model (Cook, 2000). In general the critical value is chosen to be 1. It is checked if the respective plot does not show any observations exhibiting a Cooks distance of greater than one which means that there are no influential observations.

4.4 QUALITATIVE RESEARCH DESIGN

Based on the findings of the quantitative data analysis a subsequent qualitative section follows, in order to set the quantitative findings regarding the three hypotheses into perspective, as a means of triangulation and in order to enhance the richness of the analysis (as discussed in section 4.1 and 4.2).

Following a background gathering phase (see section 4.4.1) a purposive sample of 17 top-level executives was selected (see section 4.4.2). As will be explained below, in detail, important cases were taken into account (see section 4.4.2) in the qualitative phase. This comprises SMEs which only use one or a variety of funds, as well as financiers, with a strong focus on SME financing before and after Basel II came into effect. Only top-level executives were taken into account. For example, the wealth manager of an industrial family, with a wealth comprising several billion euros, agreed for the first time ever to participate in such a study because of a long-lasting relationship with the author, from prior business cooperation.

The data collection was carried out by means of semi-structured, in-depth interviews (Saunders *et al*, 2007:312) which are justified in section 4.4.3. The interview schedule can be found as additional information in Appendix E and the informed consent letter, comprising ethical considerations, is provided in Appendix F.

The author's approach to qualitative analysis is to use deductively-based analytical procedures (Saunders, 2006:489), as described in section 4.4.4, because this is suited best for answering the research question. Regarding the qualitative analysis methods for drawing conclusions (see 4.4.4), triangulation is the main element of verification, in conjunction with the foregoing quantitative part. The noting of patterns, seeing plausibility and

building a logical chain of evidence were the three main tactics (Miles and Huberman, 1994) used as methods for drawing conclusions ('interpretation of meaning of data', Creswell, 2003:194). A sample session summary sheet (Robson, 2002) is shown in Appendix G.

4.4.1 Background Gathering Phase

Again a pre-testing phase proceeded with selected financiers and SMEs known to the author from his professional role in order to enhance quality. These interviews built the basis for the author's qualitative analysis.

4.4.2 Sample Frame regarding Qualitative Research

In line with the Basel II literature research, purposive sampling is used in the qualitative phase. The use of purposive samples in this phase is in line with Saunders *et al* (2007:232), as such a selection '*enable you to use your judgement to select cases that will best enable you to answer your research question(s)*'. Therefore 'important cases' (Creswell, 2003:221), will be taken into account. Regarding SMEs, companies were selected which already had experience with only internal finance or a variety of financing methods (heterogeneous sampling, Saunders *et al*, 2007:207). In addition, significant outliers were 'automatically' selected, as suggested by Creswell (2003:221), in order to gain deeper insights (critical case sampling), such as only one finance form over the whole firm's life-cycle.

Selection criteria for the financiers' side, comprised experience and a track record in SME financing, before and after Basel II (homogeneous sampling, Saunders *et al*, 2007:207). From each financier type, one prominent example was taken. This is in line with Wahlström's (2009:58) interviewee selection, regarding the Basel II acceptance, who argues: '*This wide distribution of employee positions allowed for the collection of a broad range of empirical data about opinions of Basel II at the banks'.* Authors like Cowley (2002) or

Hedtstück (2007) used such an approach to triangulate their findings. As the criteria for purposively selecting the 'important cases' were defined upfront, bias is not excluded, but it is limited as the selection is not arbitrarily conducted afterwards as it seems fit.
A detailed description of the sample frame, the procedure of the sampling and interview process, is shown at the beginning of the empirical qualitative section (section 6.1).

4.4.3 Implementing Qualitative Data Collection Methods

Based on the interpretation of the quantitative data collection, an open ended flexible design (Robson, 2003:163-200) will be used by means of semi-structured, in-depth interviews (Saunders *et al*, 2007:312). The interview schedules (see Appendix E) and the ethical issues included in the informed consent letter (see Appendix F), for SMEs and financiers, were created in line with the best practices introduced by Creswell (2003:277). The interviews started with a general introduction and the informed consent letter and were followed by a warm-up phase, collecting information about the professional, as well as the company background. During the interviews, the understanding of technical terms was checked for; it showed that the technical terms were well understood. The main body was set up analogous to the questionnaire section. However, the decisive difference is that the questions would be open ended. In addition, further probing questions (Saunders *et al*, 2007:330) were included to evaluate how SMEs can cope best with the effect of Basel II – from the standpoint of financiers as well as SMEs.
Semi-structured interviews (Saunders *et al*, 2007:312) built the basis for the qualitative phase and the two triangulation methods, mentioned in section 4.2.2. The justification for using semi-structured interviews is as follows. Robson (2002:271) states that qualitative research interviews are most appropriate when a study is focussing on '*the meaning of particular*

phenomena' and when it is important how '*particular phenomena developed'*. Creswell (2003:188) adds to this that interviews are '*intended to elicit views and opinions from the participants*' which aligns to the 'economic significance' aspect (see Goldberger, 1991).

Saunders *et al* (2007:313) state that in relation to the semi-structured mode of interviews that they *'are used to gather data, which are normally analysed qualitatively. These data are likely to be used not only to reveal and understand the 'what' and 'how' but also to place more emphasis on exploring the 'why''.*

According to Saunders *et al* (2007), semi-structured interviews are of advantage in the following situations, which are applied in the author's research context:

1. The purpose of research is exploratory (Blumberg *et al,* 2005). It is essential to understand the reasons for attitudes and opinions (Saunders *et al*, 2007).
2. It is of significance to establish personal contact regarding this in-depth evaluation. Top-level executives are not willing to answer in-depth questions by postal mail, according to Saunders *et al* (2007).
3. The nature of questions is complex (see below: 'confrontation with the findings from the quantitative analysis') and open-ended.
4. The length of time required and the completeness of the process, as the interviews turned out to be between 47 and 81 minutes long and all questions were discussed without a single one being omitted.

Robson (2007:271) reflects on the strong fit between conducting interview in the qualitative phase as a means of triangulation, following a quantitative phase. He states that interviews are most appropriate when '*a quantitative study has been carried out, and qualitative data are required to ... illustrate the meaning of the findings'*. In the same sense, Saunders *et al* (2007:139) points out that '*qualitative data collected by semi-structured ... interviews may*

be a valuable way of triangulating data collected by other means such as a questionnaire'. In relation to the research purpose (see section 3.2), Saunders *et al* (2007) argue that such an approach is helpful in exploratory studies which aim, according to Robson (2002:59), to '*find out what is happening [and] to seek new insights'*. This is in line with Wass and Wells (1994) who state that semi-structured interviews are used in a sequential design after a questionnaire survey, in order to explore the themes which were derived by quantitative analysis.

Linking the definition of Saunders *et al* (2007) to the author's study means that triangulation by means of semi-structured interviews ensures that the quantitative findings are interpreted in a greater richness regarding the cause-of-effects relationship of the effect of Basel II on SMEs and financiers. For example, the concept of the changes in the house bank principle could be explored in more depth by probing questions, which leads to a change in the first hypothesis as illustrated in the synopsis in section 7. Setting the qualitative analysis into relation with theoretical propositions (Yin, 2003, here: hypotheses tested), allows for an enhanced significance according to Marshall and Rossman (1999). Finally, only top-level executives were selected in the qualitative phase. According to Saunders *et al* (2007) they are more willing to take part in interviews rather than answering questionnaires. Creswell (2003) adds to this by quoting that interviews allow the '*researcher to "control" the line of questioning*' (Creswell, 2003:186) which is especially important at a top-executive level as they are more reluctant to stick to a given guideline (of a questionnaire or a fully structured interview, Robson, 2002:270).

In order to triangulate the quantitative findings with qualitative data the interviewees would be 'confronted', in the second half of the interview, with the findings of the quantitative survey. The aim is to get a deeper insight into interpretation of the quantitative data analysis through a detailed discussion.

Furthermore, this reduces bias by reflecting on the quantitative side with in-depth opinions of 'important cases'.

This 'confrontation' was conducted in the following way. The interviewees were provided with the findings from the qualitative analysis (as shown in Appendix E, Part II), on a question by question basis (showing them the findings on paper, step by step). For each section they were asked about their opinion by open questions: 'what do you think about [particular topic] from the questionnaire based survey?'

In addition, the author reflected, during the interviews, towards relevant issues derived from the quantitative analysis. For example, the finding that financiers believe in a much stronger reduction of the use of credits then SMEs do on a Pre- to Post-Basel II basis. The same applies when the interviewee expressed a strong position regarding a certain issue of the quantitative analysis which brought a new aspect to this topic. For example (see session summary sheet in Appendix G), the Director of a Savings Bank pointed out that the 'house bank principle will not deteriorate but will become a core bank principle'.

The interviews conclude with a typical cool-off-phase and closure (Appendix E contains the interview schedule as supplementary information).

All participants acknowledged the taping of the interviews. As several interviewees asked for anonymity due to bank or company corporate governance regulations it was decided to make the interviewee section totally anonymous to provide a consistent picture.

4.4.4 Implementing Qualitative Data Analysis

The aim of the author's project is an in-depth exploration of the Basel II effect. This is an intrinsic feature of qualitative data analysis in order to set diverging, quantitative Pre-Basel II research (see the literature review in

section 3) and the author's own quantitative analysis (see section 5) into perspective by means of a flexible design (Robson, 2002:95-200). This triangulation provides more richness beyond mere statistical significance (Creswell, 2003), as described in section 4.2.2.

Various methodological elements are used, based on suggestions of Miles and Huberman (1994). They address qualitative analysis from a realist philosophical stance (see section 4.1) as they look for 'structures and mechanisms'.

The author's approach to qualitative analysis is to use *deductively-based analytical procedures* (Saunders, 2006:489) as this is suited best for answering the research question. As a quantitative phase precedes in this sequential exploratory design, themes are – contrary to a grounded theory approach (Saunders *et al*, 2007:499-502) – predetermined. The theory (here: the three initial hypotheses) was set-up, upfront, by means of a Pre-Basel II literature review prior to the quantitative phase. The predefinition of themes provides good guidance, according to Miles and Huberman (1994). The aim of such a deductive approach is to '*discover regularities derived from theory*' (Tesch, 1990) and builds the basis for '*developing and testing hypotheses*' as Silverman (1993) points out, as these are 'testable propositions' in a qualitative approach.

As suggested by Crabtree and Miller (1992), key codes were determined on an 'a priori' basis – on the basis of the research question and the findings of the quantitative analysis being the theoretical framework. Deriving these codes from the research question and the hypothesis tested in the quantitative analysis is in line with Saunders *et al* (2007) who – like Crabtree and Miller (1992) – opt for deriving the codes from a predetermined analytical framework. The coding scheme, the labels attached to the categories and the justification of the coding scheme, is explained in detail in the empirical qualitative section (see section 6.3).

Using such a theoretical framework (here: hypotheses tested in the quantitative phase of the sequential design) as a basis for the qualitative analysis has the advantage of providing an initial analytical framework, according to Yin (2003).

However, authors like Bryman (1988) point out potential bias issues due to the pre-defined framework. On the other hand, this structured approach, which is based on a predefined framework, is useful in order to limit the various forms of bias described by Robson (2002:460). Data overload is managed by working with a manageable number of purposive samples. The bias of 'first impressions' and 'inconsistency' is taken care of by the structured scheme. A variety of SMEs and financiers with strong footprints in the respective field are used to protect against 'positive instances bias' and unintended 'internal consistency', 'uneven reliability', 'missing information' or 'fictional bias'. The 'confrontation' of the interviewees with the quantitative findings is a proactive way of coping with 'revisions of the hypothesis', 'confidence in judgement', 'inconsistency' and 'co-occurrence'.

To summarise, the author's approach (in terms of the Saunders *et al*, 2007) the 'dimensions of data analysis' is more structured, procedural and primarily deductive. According to Miles and Huberman (1994) qualitative analysis consists of a concurrent flow of three activities: data reduction, data display and conclusion drawing / verification. The remainder of this section is structured accordingly.

Data Reduction

The documentation of the transcripts (see qualitative data collection described above) will build the basis for the author's analysis. As suggested by Robson (2002), session summary sheets will be prepared as a method of data reduction.

A sample session summary sheet is provided in Appendix G, as an example of a session sheet. The interview with a top-level executive of one of the biggest savings banks was selected because he has decades of experience in SME financing and some elements provide evidence for the alternative hypothesis which finally led to the amended hypothesis, as described in the synthesis. The session summary sheets are already structured according to themes (variables, see section 4.1). Codes are added as 'notes' to the session summary sheet: 'green notes' provide evidence regarding an initial hypothesis, 'red notes' regarding the alternative hypothesis and 'yellow notes' refer to issues on how SMEs can cope best with the effect of Basel II. Nonverbal elements, like emotions or posture and links to other sections, were added in [brackets] directly into the text.

The categorising (Saunders *et al*, 2007:479) of the data is done by grouping, according to the building blocks of the quantitative parts. This is in line with Strauss and Corbin (1998) who suggest deriving these categories and terms / labels for these categories from theoretical frameworks. Therefore, only second level coding (Miles and Huberman, 1994) is used. That means that grouping the number of themes to the category is used, rather than first level coding (attaching labels to groups of words or to key words) due to the preceding quantitative-based research done already. Data are consequently 'unitised' by assigning parts of the various interview summary session sheets to the respective categories.

Data Display

'Causal networks' (Miles and Huberman, 1994) are used regarding display of data as this causality has a high strategic fit with the quantitative part of hypothesis testing and the author's philosophical stance. Furthermore, networks are better in pointing out relationships in a context sensitive way, rather than a matrix.

The ‘causal networks’ are built-up as follows, in order to illustrate the context sensitive action outcome relationship from a scientific realism stance (see section 4.1). Basel II is the mechanism which triggers the action of ‘corporate financing’ in the context of the current environment of the financial crisis. The future outcome, due to this context related, triggered action could be changes in the ‘house bank’ principle and means of financing described in the hypotheses mentioned in section 4.2.3.

The generic causal network is illustrated in Figure 34, with the boxes showing respective important variables of the relevant categories and the arrows displaying the relationship between them (the dependent variables are represented by the hypotheses being tested). The thicker the arrow, the more interviewees reflected upon these issues. A ‘green arrow’ is an indication that evidence is provided regarding the respective hypothesis.

Within category systems which are designed to test a theory, it is just as important to look for negative evidence data that amends the theory (see section 4.1) as it is to provide evidence that supports the theory. Therefore, negative examples get special attention as these are illustrated as ‘red arrows’ with a link to the ‘alternative hypothesis’ (see section regarding Popper with link to realism in section 4.1). In fact it turned out that two hypotheses had to be amended, based on the findings from the qualitative analysis, as discussed in the synopsis in section 7.

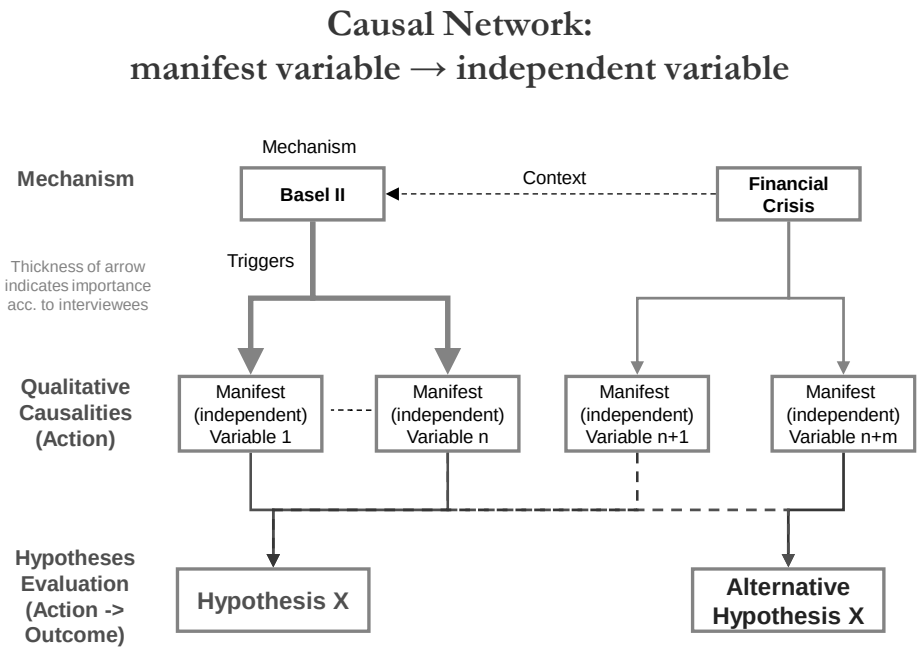

Figure 34 Causal Network structure

Conclusion Drawing and Verification

Regarding methods for drawing conclusions, triangulation (Miles and Huberman, 1994) is the main element of verification, in conjunction with the foregoing quantitative part.

The following tactics from the portfolio, as suggested by Miles and Huberman (1994:245-246), are used as methods for drawing conclusions ('interpretation of meaning of data', Creswell, 2003:194) as these are suited best to the context-related causality-seeking stance of the author. 'Seeing plausibility', 'making contrasts and comparisons', 'factoring', 'finding intervening variables' (mechanism triggers action which leads to outcomes in a context sensitive way), 'clustering', 'subsuming particulars into the general' and 'building a logical chain of evidence' (derived from quantitative research).

One of the deductively-based analytical procedures (Yin, 2003) is pattern matching, as this is a logical consequence of the sequential design the author chose. Yin suggests deriving a set of dependent variables from a set

of independent variables. These two sets had been already defined prior to the quantitative analysis and could therefore be studied in more depth during this qualitative phase. Therefore an explanation building approach would be not suitable in this context (Yin, 2003). Furthermore, the author agrees with Saunders *et al* (2007:491), who point out that this approach has the advantage of predefining the sample in a more consistent way.

In addition, this deductive approach builds the basis for '*developing and testing hypotheses*' as Silverman (1993) points out, as these are '*testable propositions*' in a qualitative approach. Therefore, the appearance of a relationship or a connection between categories will be tested. It will be checked for intervening variables, such as the context of the financial crisis, and negative examples will be explained (see Figure 34). Moreover, the tactics mentioned above are essential in refining the themes of the categories (Saunders *et al*, 2007:482). For example, the explanation for the hypothesis could be explored in more depth by new themes generated from the interviews, such as 'catalyst', 'accelerator' or 'core bank regarding certain segments' rather than generic 'house bank'.

The methods for verification suggested by Miles and Huberman (1994) will be applied. In terms of data quality this includes 'checking for researcher effects' (see section 4.5.8), 'triangulation' and 'weighting the evidence' (by selecting important cases regarding the interviewees). However, the purposive sample is not suitable regarding the 'representative' tactic, which is yet triangulated by the initial quantitative research.

Regarding testing patterns, 'outliers' will be checked and 'negative examples' looked for (by challenging different positions in relation to the quantitative study findings, for example). 'Extreme cases' will be used, for example, by incorporating a family office manager, because family offices are small in number but normally comprise a high fund volume, which is managed by a small staff compared to an average private equity company.

In terms of testing explanations the prime tactics used will be: ‘making if-then tests’ (as the interviews cover various aspects of financing means or sectors), ‘ruling out spurious relationships’ (by reflecting on the longer term issue of Basel II vs. the current financial crisis), ‘replicating a finding’ and ‘repeating in different context’ (by the structured approach of the semi-structured interviews) as well as ‘checking out rival explanations’ (see testing patterns above).

4.5 ETHICAL CONSIDERATIONS

During data collection and data analysis ethical implications have to be considered carefully as SMEs have hardly any obligations regarding the publication of financial data. In Germany, only from the year 2007 onwards did companies have the obligation to publish at least some basic balance sheet data (BMWI, 2008). The author therefore complies with ‘ethical best practices’ introduced by Oliver (2003) and university standards such as those of the University of Bradford (2003) or ESRC (2005). The ethical impact matrix, shown in Figure 35, provides an overview followed by a detailed description. Ethical considerations have been highlighted within the qualitative interview guide (see Appendix E) as the informed consent letter (see Appendix F) is introduced at the beginning of the interview. For each shaded box a course of action is applied, such as an informed consent letter in the qualitative data collection phase (see Appendix F). In addition, when arranging the semi-structured interviews, by means of phone calls, the main elements of the informed consent letter had already been introduced.

Regarding the generalisability of the findings, coping with bias is essential. Therefore the various issues of bias in quantitative and qualitative research are evaluated in depth in section 4.5.8.

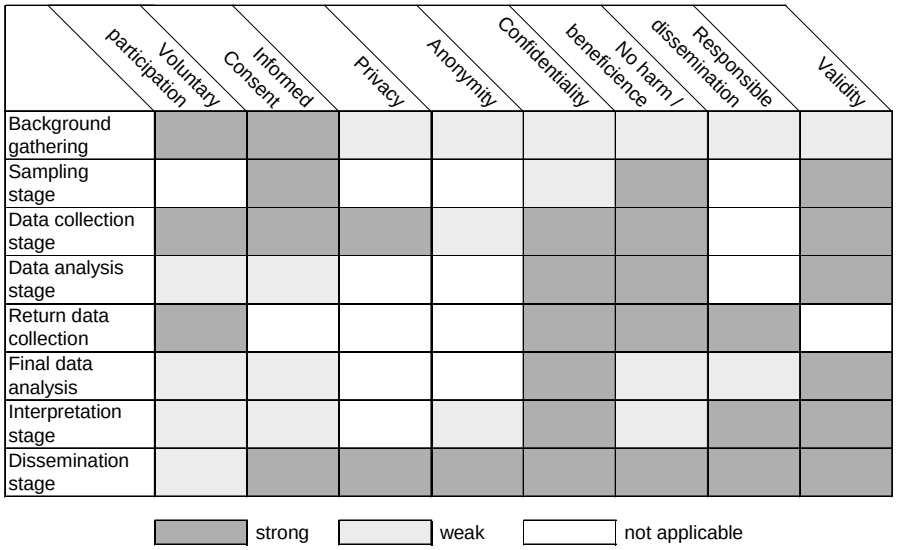

Figure 35 Research design phase – ethics impact mapping

4.5.1 Voluntary Participation

The self-administered questionnaire allows 'per se' for voluntary participation (see Oliver, 2003:58). Therefore, the issue of voluntary participation arises, in particular, in the interviews during the background gathering and data collection and – in the case of call backs – in the data analysis phases too. Making a clear division between the author's corporate business and the DBA research is crucial, as outlined by Robson (2002:543) when he describes the '*research consultant role*' (see below 'informed consent letter').

In addition, the author makes it clear throughout the multiple research stages described below that it is possible to leave the study at any time or that passages can be excluded by saying issues 'off the record' (Hannabuss, 1996:25). Furthermore, the participant has the right to exclude their data. Every interviewee received a copy of the interview for reviewing and reflecting on participating further.

4.5.2 Informed Consent

Due to the 'dual role' of the researcher who is a consultant too, the danger arises that he could use the 'neutral' umbrella of DBA research in order to get access to decision makers of potential clients, which would not have happened in the same way otherwise. In line with Sue and Ritter (2007:22), an extensive 'informed consent letter' clarifies that the study is sponsored by a corporate finance consultancy.

Regarding the interviews, oral consent was obtained during the taped interview, as described by Oliver (2003:45), by reading the 'informed consent letter' upfront (see Appendix F). Furthermore, notes were kept in case the taping failed (see Saunders *et al*, 2007:326), which was however not the case.

On the other hand, participants might hope to get free of charge advice which would oppose the 'no harm to non-participation' principle stated below. Thielemann (2000:22) points out that researchers '*circumvent the destructive feature of the market*'. Anonymity was required by several interviewees and therefore was granted for all interviewees.

4.5.3 Privacy

The research topic is a standard business issue. Yet, the information gathered on corporate financing is sensitive. This applies to the Internet as well, although some authors, such as Berry (2004) opt for an 'open source' approach. Therefore, privacy is an issue, especially in the data collection and dissemination stage.

This fact means that the data must be disseminated in a way that no interference could be possible to a specific company (see below). This reflects on the issue that confidentiality is important as a means of intellectual privacy.

4.5.4 Anonymity

According to the author's knowledge, corporate finance research done, for example, by Claessens *et al* (2005) or Schrör and Kayser (2006) was carried out using confidentiality rather than anonymity, as standard business matters are normally not highly personal risk-laden, like, for example, research on refugees. In order to comply with research standards in this field, informed consent was used in addition to confidentiality. However, anonymity was granted on request (Oliver, 2003:80) during data dissemination, for example. As Jones (1995) points out, this is especially important in Internet publications, due to extended information linking and tracing possibilities. In addition, it was possible to send in the questionnaire anonymously.

4.5.5 Confidentiality

In order to ensure confidentiality in case of data loss or unauthorised access, several practical actions were taken. Confidentiality was ensured by using secured or encrypted files for the questionnaire reply forms and the interview files. The tape was destroyed (by overwriting) as soon as the interview was approved by the interviewee. Following informed consent the transcript (recording) was mailed via secured e-mail using a password which was only orally transmitted. Within the (final) data analysis and interpretation phase the author made sure that only aggregated figures were used. An important issue arises if the sample size of a certain sector is so small that by making a sector based aggregation an individual company could be traced back, even if it is not mentioned by name. Yet, this was not the case.

The confidentiality issue is even more crucial when using findings from the interviews. It must not be possible to derive a specific company or investor via the data published. In the instance that police matters are affected, a special policy was defined upfront. This applies if the authors obtain knowledge that, for example, some of a company's funds were gained by not

paying taxes properly due to manipulated accounts. As the author is a journalist, there is confidentiality protection regarding information obtained by the Bavarian Press Law (BayPrG, 2000). Yet, such an issue did not occur.

4.5.6 No Harm / Beneficence

As discussed, corporate finance research possesses less harm potential regarding, for example, physical danger, as could be the case with clinical research. However, non-maleficience (Saunders *et al*, 2007:181) is an issue. For example, other persons could use the published findings in a way not intended by the author. Therefore, the original research findings were disseminated as a source of comparison, extensively and enduringly, in print and on the Internet (author's corporate homepage).

In order to provide beneficence (Oliver, 2003:35) a two step approach was used: every participant got an individual evaluation of his corporate finance situation in relation to the peer group. This would assist them in optimising their corporate finance strategy in relation to the Basel II effect. According to Göritz (2005), such 'nonmaterial incentives' enhance response rates.

The author made sure that a broad business audience (managers, investors and other consulting competitors of the author) benefitted from the research too; articles about the research findings in corporate finance and SME related magazines were published by the author and by journalists, with support from the author. In addition, articles were published in the renowned financial news service vc-facts and M&A news and Going Public magazine.

Furthermore, a press release was distributed to several hundred journalists regarding target group publications. The summarised findings could be found on the author's company homepage too. With these measures the author could limit the comparative benefit for participants over non participants, and in addition, reduce competitive advantage for the author's own consultancy over competing consultancies.

4.5.7 Responsible Dissemination of Data / Results

In addition to the specific actions already described the author coped with ethical issues as follows. The findings were disseminated only in an aggregated manner allowing no interferences to an individual company. Otherwise, if a bank could recognise that its client is in a potential crisis this could impose substantial harm on the participant. Providing anonymity for direct quotes on request, and providing a high status of confidentially (see above), provides a high degree of harm protection.

4.5.8 Validity

As explained in section 4, the sequential mixed methods design, in its specific set-up, ensures a high degree of internal and external validity (Robson, 2002:102). The author follows the approach of Brewer and Hunter (1989) who propose a pragmatic approach to reconciling quantitative and qualitative studies.

Furthermore, the author prepared guidelines upfront on how to cope with typical issues in quantitative research, such as ‘missing data’ (see Robson, 2002:396) or interview bias. As discussed, the interviews were carried out solely by the author –trained as a member of the Journalists Association – in order to ensure a high consistency. As discussed, coping with the threat of reliability and bias is essential in terms of generalisability. In the following paragraphs, the various elements are considered and explanations for how this is managed will be given.

Coping with threats to reliability

According to Robson (2002) four threats to reliability exist. The author will cope with these issues, in order to enhance reliability and to avoid bias to a major extent, as follows:

1. Subject or participant error – be it by change or purposely

   An extensive two-step pre-testing phase, as suggested by Robson (2002:229), was applied in order to ensure a high validity and reduce bias by means of an iterative refinement of the questionnaire (see below).

2. Subject or participant bias

   This occurs if a participant tries to be nice or puts their own company in a good light (Saunders et al, 2007:149). As suggested by Saunders *et al* (2007), an introductory statement will be used regarding questions which could lead to unease. For example, participants could feel uncomfortable with answering questions as to how often credit is declined. An introductory statement, such as the following, could foster an honest answer: 'according to surveys the number of declined SME credits is on the rise in recent years'. Furthermore, in line with Saunders *et al* (2007:383), a neutral title is used regarding the questionnaire.

3. Observer error, e. g. by means of various interviewers

   Face-to-face interviews will be carried out solely by the author in order to ensure a high consistency. The author has been trained intensively as a member of a German Journalist's Association in interview techniques.

4. Observer bias, regarding the interpretation of the answers

   A two-step quantitative and qualitative analysis phase should reduce bias by means of triangulation. The quantitative analysis was defined prior to sending out the questionnaires and was carried out in a consistent, repeatable way. Cross-checking with the surveys from other researchers with similar research designs was used to limit bias.

Coping with bias during data collection and analysis

In order to avoid the two reasons of sample selection bias, mentioned by Heckman (1979:53), probability sampling is chosen with the underlying

sample frame comprising of the whole population under the assumption mentioned by Robson (2002:254), regarding RDD in section 4.3.2.
Regarding the deployment of data analysis strategies, Kervin (1999) refers to the importance of dealing with the two means of measurement bias regarding data collection and analysis. The author coped with these issues as follows in order to enhance reliability and to avoid bias to a major extent:

1. Deliberate or intentional distortion of data

   Regarding the presentation of data the author ensured that it complied with academic standards presented, for example, by Lapin (1993) or Lee (2007a).

   Questions were displayed in a neutral non-leading style. Regarding sensitive questions an introductory (neutral) statement ensured lowering the barriers to answering honestly, as discussed.
2. Changes in the way data are collected

   The consistency in data collection was ensured as all data were collected by means of the same self-administered questionnaire in the quantitative phase and the same interviewer using the same semi-structured interview schedule for all interviews in the qualitative phase.

Regarding conducting interviews Saunders *et al* (2007:218) refers to two forms of bias to be careful of:

1. Interviewer bias

   The tone of the interview, as well as a (neutral) non-verbal behaviour (Saunders *et al*, 2007:325), is decisive during the interviews. Therefore, the interviews will be taped (with the advantage that the 'tone' can be captured as well, see Saunders *et al*, 2007:324) or notes taken. Informed consent would be established which is essential due to the dual role of the interviewer as 'researcher and consultant'. Furthermore, these face-to-face interviews will be carried out solely by the author in order to ensure a high consistency. The author is a member of a German Journalists

Association. Journalists are trained in coping with the seven competencies listed by Saunders *et al* (2007:329), such as appropriate opening of the interview, using appropriate language, questioning, listening, testing and summarising understanding, recognising and dealing with difficult parts and recording data.

For example, consistent wording was used, as suggested by Sue and Ritter (2007:57). This should help to reduce bias within the interviews. In terms of bias concerning interpreting results, the issues discussed already apply in the qualitative phase too.

2. Interviewee or response bias

   Saunders *et al* (2007:218) point out that some aspects may not be revealed as this might lead to probing questions. In order to avoid making interviewees feel uneasy some introductory statements will be made upfront. Furthermore, during the semi-structured interviews open questions will be used to a major extent. According to Easterby-Smith *et al* (2002) open questions ensure a reduction of bias.

   As interviews are more time-consuming some participants will not want to attend (Robson, 2002). However, the issue of non-participation did not apply.

   Furthermore, the author will provide a recording and a summary of each interview in order to *'scope test understanding'* as a means of coping with bias, according to Saunders *et al* (2007:326).

   The danger of misinterpretation due to cultural-misunderstanding (Saunders *et al*, 2007:325) seems to be of minor relevance as the SME managers, as well as financiers, seem in general to have a similar cultural background to the author.

5 RESULTS OF THE QUANTITATIVE ANALYSIS

The following analysis is based on the returned self-administered questionnaires, as described in section 4.3. For each of the three hypotheses, a model was set-up which was tested based on a comparison of Pre-Basel II and Post-Basel II data for SMEs on the one hand, and financiers on the other hand (besides rating related issues which were tested for SMEs only). This is in line with the predominant approach in Basel II research, as evaluated in the literature review section 3*. All five models supported the three hypotheses. In addition, checks for collinearity (see Gujarati, 2003:343) were made and multiple linear regressions (Gujarati, 2003:42) were conducted which provided evidence. These findings, from the hypotheses testing, provide the basis for the in-depth qualitative analysis as a means of triangulation, which is provided in section* 6*.*

5.1 QUANTITATIVE MODEL

As described in section 4.3.4, the indexes to test hypothesis 1 (H1), hypothesis 2.a (H2) and hypothesis 2.b, which is equal to hypothesis 3 (H3), are defined as follows.

Let $Y_{Hn,p/f}^{TYPE}$ denote the index value for Pre- and Post-Basel II periods for '*Hn*' (which is hypothesis n) with '*TYPE*' = '*SME*' (for SME index) or '*FIN*' (for financier index).

Then $Y_{Hn,p/f}^{TYPE}$ is defined as the sum of the values of the m items $X_{j_1,f/p}^{TYPE,i}, \ldots, X_{j_m,f/p}^{TYPE,i}$ included in the index, with 'i' representing the *'question module i',* and 'j_k' representing the j_k[th]-question in *'question module i';* 'p' stands for Pre-Basel II values, 'f' stands for Post-Basel II values as stated in section 4.3:

$$Y_{Hn,p}^{TYPE} := X_{j_1,p}^{TYPE,i} + \cdots + X_{j_m,p}^{TYPE,k}$$

$$Y_{Hn,f}^{TYPE} := X_{j_1,f}^{TYPE,i} + \cdots + X_{j_m,f}^{TYPE,k}$$

and the delta between Pre- and Post-Basel II values is defined as:

$$\Delta Y_{Hn}^{TYPE} := Y_{Hn,f}^{TYPE} - Y_{Hn,p}^{TYPE}$$

A detailed justification of why specific manifest (dependent) variables were chosen is provided in Appendix B. The data analysis is thus carried out by using the appropriate statistical tests (see description in section 4.3.4) based the assumptions of Blumberg *et al* (2005), regarding the usage of Likert scales and the CLT (see Stutely, 2003 and Saunders *et al*, 2006:2010-2011) as justified in section 4.3.4. In order to check if the Pre- and Post-Basel II index values are significantly differing, or not, the paired t-test or the Welch t-test is applied under the assumption of normally distributed index data, as described in section 4.3.4. In case the assumption of normally distributed index data could be questioned, a Wilcoxon signed-rank test is applied. This is carried out to safeguard the findings as this '*is a nonparametric equivalent of the paired two-group t-test*' (Robson, 2002:441). In addition, basic statistics, histograms and Q-Q plots in sections 5.4, 5.5 and 5.6, are presented in order to analyse whether the underlying data is normally distributed and if homoscedasticity (Gujarati, 2003:68) or heteroscedasticity (Train, 2009:92) exists.

5.2 BASIC DESCRIPTIVE STATISTICS

Sixty SMEs and 66 financiers sent back the self-administered questionnaires (see section 4.3) which were distributed by postal mail with a pre-paid postal return envelope, in October 2008. With 11.45% and 12.6% the return rates were in line with Basel II related studies under review, which showed return rates of between 8% and 15%. For example, KfW and 25 German

associations undertook an empirical study about corporate finance with a return ratio of slightly more than 10% (Plankensteiner and Zimmermann, 2008). As discussed in the literature review section, the majority of the primary research on Basel II (in Germany) contains between 40 and 120 respondents in terms of quantitative analysis, like Kolbeck *et al* (2002) or Grunert and Weber (2009), for example.

Sections 5.2.1 and 5.2.2 present some basic statistics regarding the SME and financier sample. More detailed statistics, like certain statistical tests are beyond this introductory evaluation, and are left to the hypotheses testing with in-depth justified and tested in sections 5.4, 5.5 and 5.6. The aim is to provide evidence regarding the three hypotheses as 'confirmability increases with testability' (Popper, 2002:291). As all tests regarding the models, with respect to the three hypothesis, showed statistically significant results, it '*is at any rate not unworthy of being seriously considered and perhaps even of being believed – though only tentatively*' as Popper (2002:309) puts it. Therefore, the initial hypotheses build the basis for the consecutive qualitative phase in the author's mixed-method sequential design (see section 6).

5.2.1 SME Sample

Only one of the 60 SMEs was not included because the revenue as well as the employee size did not fulfil the EU classification criteria.

General company data

The returned sample seems to provide a valid representation in terms of regional dispersion and sectors, as shown in Figure 36; although, reconciliation with statistical data is beyond the scope of this thesis and not in the focus of this research.

Sector and geographic region

The German states ($X_2^{SME,1}$, see codebook in Appendix D) which provide the bulk of the GDP, like Bavaria, Baden-Wuerttemberg or North Rhine-Westfalia (see statistical data of the Federal Republic of Germany, see Kertels, 2010), dominate in comparison to the new (East) German states, for example. The same applies in terms of sectors, where the traditional stronghold of the Germany industry, like plant and machinery, automotive, industry in general or pharmaceutical / chemical industry, dominate supplemented by consulting / services (McKinsey, 2008).

	Plant and Machinery	Automotive	General Industry	BioTech	MedTech / High-tech	IT&C, Media, Pharma	Chemistry and Construct.	Building, Food	Consumer Goods	Water	Energy and Trade	Retail and Industry	Financial Serv.	Logistics	Consulting and Services	Agriculture and Mining	Total	
Baden-Wuerttemberg	0	0	1	0	1	0	2	0	1	0	0	1	0	3	0	9	16.4%	
Bavaria	2	0	0	0	4	0	2	0	0	1	1	0	2	2	0	14	25.5%	
Berlin	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1.8%	
Brandenburg	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3.6%	
Free Hanseatic City of Bremen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
Free Hanseatic City of Hamburg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
Hesse	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	4	7.3%	
Mecklenburg-West Pomerania	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1.8%	
Lower Saxony	0	0	1	0	0	0	0	1	0	0	0	0	2	1	1	6	10.9%	
North Rhine-Westphalia	1	1	1	0	1	0	1	1	0	0	2	0	1	0	0	9	16.4%	
Rhineland-Palatinate	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	3	5.5%	
Saarland	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1.8%	
Saxony	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1.8%	
Saxony-Anhalt	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	3.6%	
Schleswig-Holstein	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	
Thuringia	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	3.6%	
Total	5	2	6	0	9	2	5	2	1	1	7	1	6	7	1	55	100.0%	
	9.1%	3.6%	10.9%	0.0%	16.4%	3.6%	9.1%	3.6%	1.8%	1.8%	12.7%	1.8%	10.9%	12.7%	1.8%	100.0%		

Figure 36 Cross tabulation German states and sector

SME size

The sample as a whole is characterised by the following descriptive statistics, in terms of SME revenues and employees, which are both a proxy to firm size as is stated by the European Commission (2003b:36). In terms of SME employees as well as with revenues (see below), the average of the years 2006 to 2008 (between the European Basel II directive CRD and the inception of Basel II in Germany) are taken into account as this levels out annual fluctuations which might be derived from business cycles, for example.

The descriptive statistics regarding employee size are illustrated in Table 2. Taking the arithmetic average of the years 2006 to 2008 into account, the employee number ($X_1^{SME,I1}$, see codebook in Appendix D) show a mean of 80.567 and the revenue mean ($X_1^{SME,I2}$) is 19.085 million euros.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$SME_{Empl.}$	1.0	599.0	80.567	55.0	9,255.082	96.2033	3.161
$SME_{Rev.}$	0.1	221.0	19.085	8.5	1,256.973	35.4538	4.189

Table 2 Basic statistics SMEs employees and revenues

Both distributions show a strong positive skewness ($\gamma_{Empl.} = 3.161$ and $\gamma_{Rev.} = 4.189$). This indicates that values which are on the left side of the mean (lower than the mean) are more likely to occur than values on the right side of the mean (higher than the mean). Figure 37 and Figure 38 show the histograms (class size according to EU criteria) and the respective box-plots. Regarding the number of employees (revenue size) 13.6% (20.3%) of the companies who responded were micro enterprises, 31.6% (33.9%) were small enterprises, and 50.9% (33.9%) were medium enterprises, according to the EU criteria mentioned above (leaving 3.5% (5.1%) for the two (three) major SMEs, see discussion of outliers below).

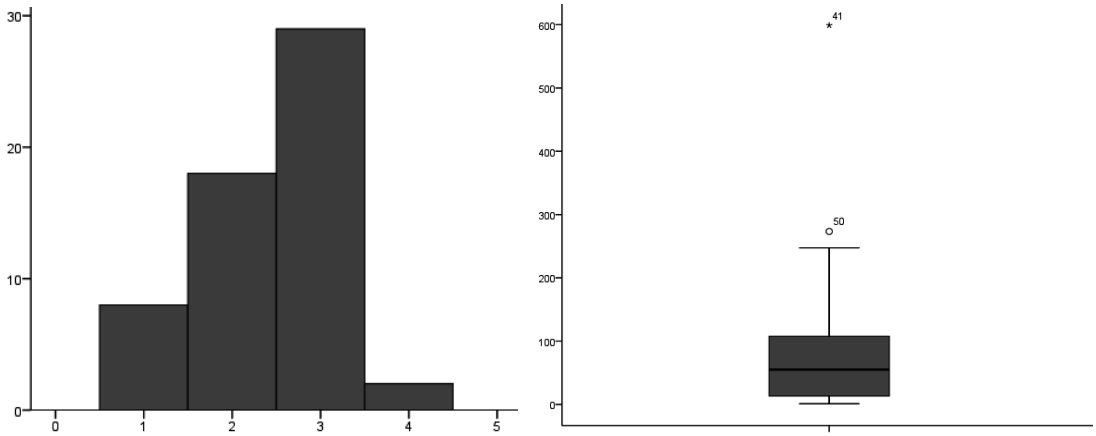

Figure 37 Histograms and boxplots regarding SME employees

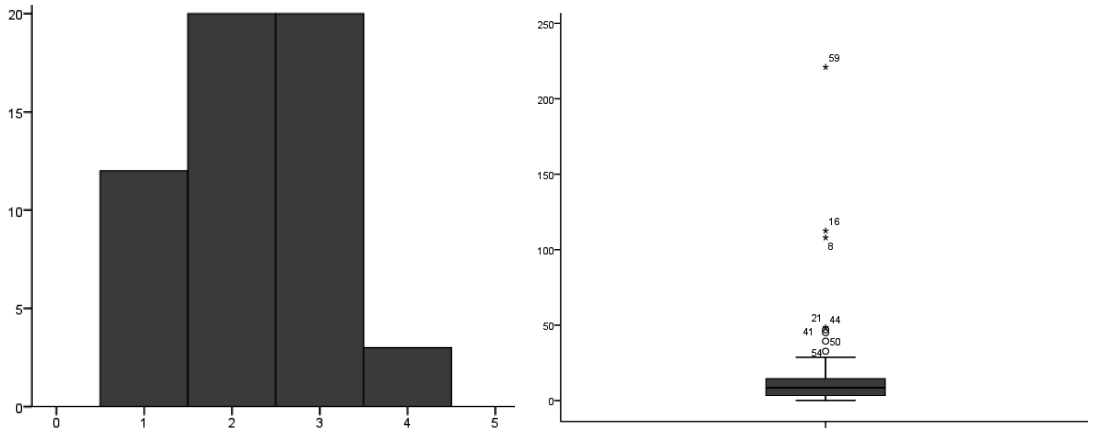

Figure 38 Histograms and boxplots regarding SME revenues

In a mixed-method sequential design, outliers / extreme values (more than 1.5 / 3 times the interquartile range above the 75% percentile, Huizingh, 2007:237) provide a rich source of additional information. These values can, for examples, be evaluated in-depth by means of the qualitative analysis (see section 6), followed by the quantitative one in this section. One of the values explained below belongs to an SME which already exists for decades with a strong growth in the last years, but is dedicated to internal finance only. Therefore, this case was included as 'important case' into the qualitative analysis in section 6 (see interviewee selection as described in section 4.4).

The outlier in the employee boxplot (see Figure 37) belongs to a special machinery company which uses a labour intensive production methodology

to generate revenue of 36.0 million euros, maximum, within 2006 to 2008. The same applies to the extreme value of a transportation company which is, per se, a labour intensive business (a maximum of 43.0 million euros, which is within the EU SME criteria). The extreme revenue values, in Figure 38, refer to a company which belongs to the B2B services industry and two companies coming from the retail sector. As these sectors do not produce physical assets, it is typical that they are able to generate relatively large revenues with few employees (only 34 for financial services and 248 and 250 for the retail / trade companies, which is still in line with the EU SME criteria).

5.2.2 Financier Sample

Only one financier was not active at all in SME financing and was therefore excluded. As described below, two financiers are outliers / extreme values, in terms of funds volume, regarding the subsets banks and non-bank financiers. These two financiers are a rich source of additional information. As these have a long track record in SME financing, in terms of experience as well as in terms of volume of SMEs financed (with various means), they were included as 'important cases' into the qualitative analysis in section 6 (see interviewee selection as described in section 4.4).

Regional focus

Three out of four financiers focus on Germany as a whole, or even on dedicated German states, as shown in the frequency Table 3, with Bavaria taking the lead with four mentions, followed by five other states with two mentions ($X_6^{FIN,1}$, see codebook in Appendix D).

	German State	Germany	Europe	Worldwide
$Regional\ focus$	28.1	46.9	14.1	10.9

Table 3 Regional focus of financiers

Duration of activity and funds size

Table 4 provides some basic statistics regarding financiers as a whole and regarding the sub-set banks, as well as non-bank financiers with respect to years of business activities and funds volume. The mean of years of business activities is 27.46 years ($X_2^{FIN,1}$, see codebook in Appendix D), with banks already being in existence for decades ($\mu_{Years\ (Banks)} = 79.0$). Whereas, the lower mean of non-bank financiers ($\mu_{Years\ (Non-banks)} = 13.5$) reflects the fact that alternative means of finance is relatively new, as described by one of the founding fathers of a private equity association during the interview in the quantitative phase (see section 6). Only two financiers (private equity companies) were started in Germany since the inception of Basel II; all the others have been active for a much longer time – one for over two centuries. In terms of funds volume the mean of asset volume (average of 2006 to 2008, variable $X_{1,f/p}^{FIN,I6}$, see Table 49) comprised more than one billion euros ($\mu_{Funds\ (FIN)} = 1{,}614.546$). Banks operate on a larger scale ($\mu_{Funds\ (FIN)} = 7{,}726.377$) compared to non-Bank financiers ($\mu_{Funds\ (Non-banks)} = 285.887$). This reflects the dependence on bank credits (see Jacobson *et al*, 2006, for example) in bank-based economies (Heid, 2007) like Germany (Norden and Weber, 2005), as described in section 3.3.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
FIN_{Years}	1.0	209.0	27.46	12.0	1,950.486	44,164	3,101
$Banks_{Years}$	8.0	209.0	79.0	55.0	5,617.0	74.947	0.837
$Non-bank_{Year}$	1.0	45.0	13.5	11.0	122.085	11.049	1.53
$FIN_{Fund\ vol.}$	0.2	49,333.333	1,614.546	123.0	4.738E7	6,883.64	6.422
$Banks_{Fund\ vol.}$	0.933	49,333.333	7,726.377	485,0	2.379E8	15,425.568	2.633
$Non-bk_{Fund\ v}$	0.2	2,200.0	285.887	100.0	219,196.071	468,184	2.958

Table 4 Basic statistics financiers

As regards funds volume, Figure 39 to Figure 41 provide the respective histograms and boxplots. The observed fund volume values show a high variance as credits and non-bank means of finance have various volumes as sources of finance, as described in section 2.10 about corporate financing of SMEs in Germany.

The high positive skewness ($\gamma_{Fund\ vol.\ (FIN)} = 6.411$, $\gamma_{Fund\ vol.\ (Banks)} = 2.633$ and $\gamma_{Fund\ vol.\ (Non-banks)} = 2.828$) shows that values which are on the left side of the mean (lower than the mean) are more likely to occur than values on the right side of the mean (higher than the mean).

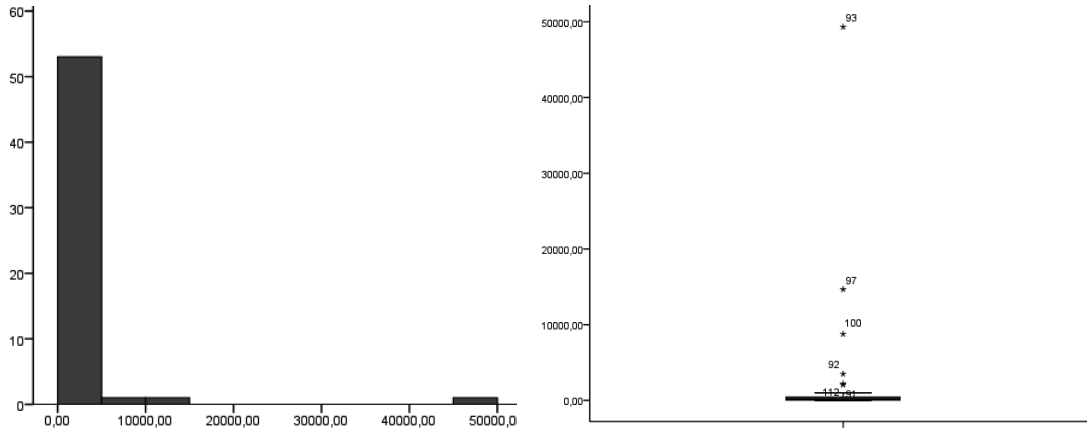

Figure 39 Histogram and boxplot for all financiers regarding volume

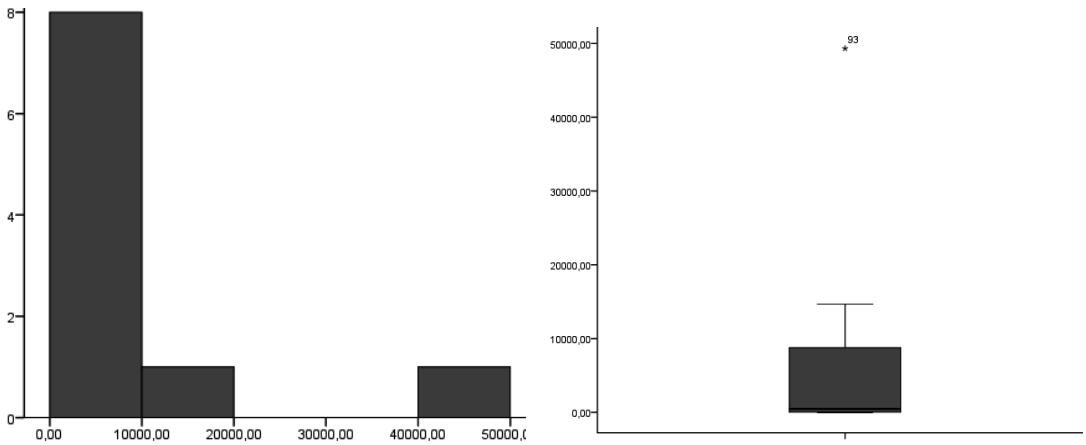

Figure 40 Histogram and boxplot for sub-set banks regarding volume

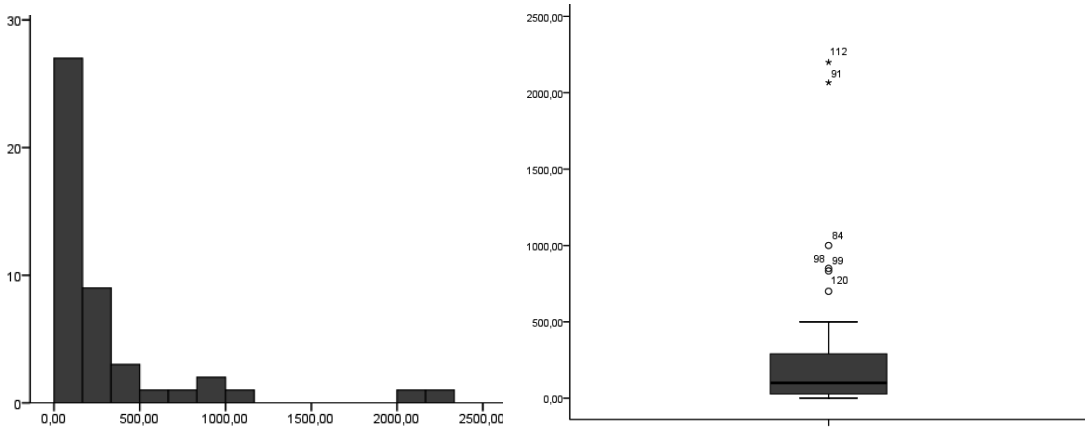

Figure 41 Histogram and boxplot for sub-set non-bank financiers regarding volume

The biggest extreme values belong to banks, which are shown in Figure 39, as these represent one-of the biggest commercial banks with often more than one hundred outlets (see extreme value in Figure 40, too).

In terms of non-bank financiers (see Figure 41), the extreme values belong to an SME funds-of-funds investor and a very large mezzanine / private equity fund. The four outliers comprise private equity firms which partly offer other forms of finance as well. After a strong increase in funds size (see Figure 42) the funds volume of non-bank financiers showed a decline in 2008 which is in line with the literature review on non-bank financing in section 2.10 (see BVK, 2009b, and EVCA, 2009). On the other hand, the volume of banks, of the participating banks, increased steadily even from 2007 to 2008.

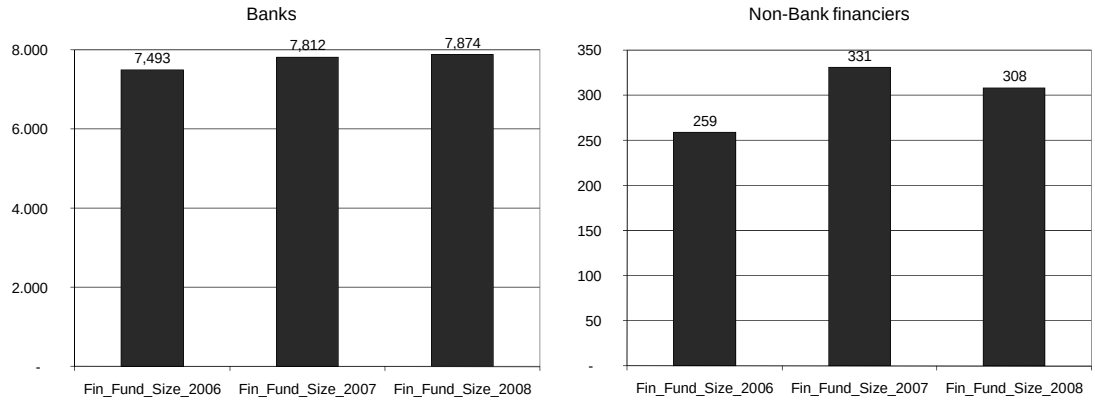

Figure 42 Funds development

5.3 GENERAL ASSESSMENT

While sending out the questionnaires, the subprime crisis was in public discussion, as described in section 4.3. Therefore, when assessing certain hypotheses related to aspects of Basel II, the respondents were asked how they regard the importance of Basel II concerning their respective assessment. This served as a kind of control question regarding the influence of the current financial crisis on corporate financing in relation to the longer-term Basel II effect. In general, the quantitative analysis provided evidence that Basel II is (in relation to the current subprime crisis), on average, of high importance, as illustrated in the summary section 5.7. This was confirmed by the consecutive qualitative phase (see section 6).

On a scale, from 1 = 'no importance' to 4 = '(very) high importance', SMEs rank Basel II ($\mu_{Basel\ II\ (SME)} = 3.07$) nearly as high as the crisis of the SME banks ($\mu_{SME\ bank\ (SME)} = 3.12$), leaving the subprime crisis ($\mu_{Subprime\ (SME)} = 2.98$) and the crises of the investment banks ($\mu_{Inv.bank\ (SME)} = 2.74$) behind ($X_1^{SME,2}$ to $X_4^{SME,2}$, see codebook in Appendix D). Financiers ($X_1^{FIN,3}$ to $X_4^{FIN,3}$, see codebook in Appendix D), on the other hand, regard the crisis of the SME banks ($\mu_{SME\ bank\ (FIN)} = 3.62$) and the (bank related) subprime crisis ($\mu_{Subprime\ (FIN)} = 3.56$) to be of highest importance followed by Basel II ($\mu_{Basel\ II\ (SME)} = 3.19$), with and the crises of the investment banks with respective distance ($\mu_{Inv.bank\ (SME)} = 3.0$). With values well above '3', SMEs as well as financiers regard Basel II as being of major importance.

The non-parametric Friedman test is applied for related samples as this test does not need the assumption of a normal distribution and interval data. The Friedman test tests if the samples belong to the same distribution (H_0) by comparing the medium ranks of the variables. For every item of every case the values are ranked. In the next step, the medium average rank of each

variable is evaluated. The significance value regarding H_0 is calculated (Brosius, 2008). Hence, the Friedman test tests the null-hypothesis of equal means (H_0) against the alternative of different means (H_1) .

Applying the Friedman test shows that the difference, regarding the means, is statistically significant (see Table 5). The test statistic regarding SMEs of $\chi^2 = 7.97$ results in a p-value of $p = 0.047$. The same applies regarding financiers: the test statistic of $\chi^2 = 30.664$ results in a p-value of $p = 0.0$. Hence, the null-hypothesis that the means of the four effect values (Basel II, subprime crisis, crisis of investment banks, crises of SME banks) are equal is rejected on a significance level of 5% (α =0.05).

	Friedman test		*Mean ranks*			
	Test stat χ^2	p-value	Basel II	Subprime	Inv.bank	SME bank
$Effect_{SME}$	7.97	0.047	2.55	2.51	2.19	2.75
$Effect_{FIN}$	30.664	0.0	2.21	2.85	2.02	2.92

Table 5 Friedman test results regarding SMEs' and financiers' effect assessment

5.4 TESTING HYPOTHESIS H1

H1 states that corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating (H1). This is tested by comparing the means of the SME related index values on a Pre- and Post-Basel II basis (as described in section 5.4.1) and by comparing the respective means in relation to the financier model (as introduced in section 5.4.2). The justification of the variables chosen is provided in section 4.3.4 and in Appendix B. Applying the respective tests (mentioned in section 5.1) provides evidence regarding hypothesis 1 – from the SMEs' perspective (SME questionnaire sample) as well as from the financiers' perspective (financier questionnaire sample). Figure 43 illustrates the subset manifest (dependent)

variables (grouped by latent variables, see comprehensive overview in section 4.2.4) used in order to test H1 in sections 5.4.1 and 5.4.2.

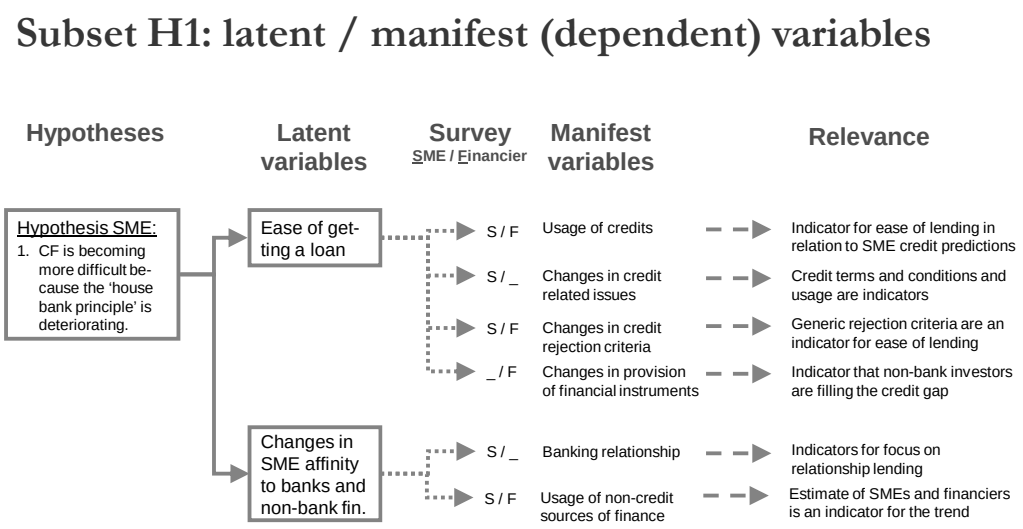

Figure 43 Variables regarding H1

5.4.1 H1: Model testing from an SME's perspective

The SME index, measuring the extent of the 'house bank principle' (H1), includes the nine variables displayed in Table 6. The selection of these nine variables was derived from the author's background gathering phase (see section 4.3) and the literature review (see section 3). A detailed justification can be found in Appendix B.

To explain further, '4 L' means that the variables comprise a four item Likert scale. Alike, a '3 L' represents a three item Likert scale which is transformed to a four item Likert scale so that they range from 1 to 4. This is carried out in order to guarantee that the items within the index are equally weighted. The 'scale' value '1-4' means that the transformed variable comprises values between 1 and 4 on an interval basis as they are the arithmetic mean of several four item Likert scale variables. Variable 8 represents the arithmetic average of variable $X_{5,p/f}^{SME,4}$ to variable $X_{12,p/f}^{SME,4}$. This comprises the non-credit sources of external finance: supplier credit, leasing, factoring, mezzanine, securities (ABS), private equity, strategic investor and IPO. In a similar way,

variable 9 comprises the arithmetic average of the two generic rejection criteria 'SME in general' ($X_{2,p/f}^{SME,6}$) and 'Certain sector' ($X_{3,p/f}^{SME,6}$) like 'automotive', for example. In case of a 'negative influence' (variable 1 and 2) the inverted values are taken into account as described in section 5.1.

The respective SME codebook (Saunders *et al*, 2006:593), regarding the SME variables, can be found in Table 48 within Appendix D.

Number	Variable	Label	Influence	Scale
1	$X_{3,p/f}^{SME,4}$	Usage of bank credits	Negative	4 L
2	$X_{4,p/f}^{SME,4}$	Usage of SME subsidies	Negative	4 L
3	$X_{5,p/f}^{SME,9}$	Development of No. of phone call	Positive	3 L
4	$X_{7,p/f}^{SME,9}$	Development of No. of meeting	Positive	3 L
5	$X_{15,p/f}^{SME,9}$	Development of overdraft	Positive	3 L
6	$X_{16,p/f}^{SME,9}$	Development of credit rates	Positive	3 L
7	$X_{18,p/f}^{SME,9}$	Development of credit declines	Positive	3 L
8	$X_{1,p/f}^{SME,I3}$	Importance of non-credit financing	Positive	1-4
9	$X_{1,p/f}^{SME,I4}$	Generic rejection criteria	Positive	1-4

Table 6 Variables for H1 SMEs

Testing H1 SMEs

Let $Y_{H1,p/f}^{SME}$ denote the index value for Pre- and Post-Basel II assessments in relation to H1 from the SMEs' point of view.

Then $Y_{H1,p/f}^{SME}$ is defined as:

$$Y_{H1,p}^{SME} := X_{3,p}^{SME,4} + X_{4,p}^{SME,4} + X_{5,p}^{SME,9} + X_{7,p}^{SME,9} + X_{15,p}^{SME,9} + X_{16,p}^{SME,9} + X_{18,p}^{SME,9} + X_{1,p}^{SME,I3} + X_{1,p}^{SME,I4}$$

$$Y_{H1,f}^{SME} := X_{3,f}^{SME,4} + X_{4,f}^{SME,4} + X_{5,f}^{SME,9} + X_{7,f}^{SME,9} + X_{15,f}^{SME,9} + X_{16,f}^{SME,9} + X_{18,f}^{SME,9} + X_{1,f}^{SME,I3} + X_{1,f}^{SME,I4}$$

and the delta between Pre-Basel II and Post-Basel II values is defined as:

$$\Delta Y_{H1}^{SME} := Y_{H1,f}^{SME} - Y_{H1,p}^{SME}$$

Table 7 shows some basic statistics regarding the index values connected to H1 concerning SMEs. It can be observed that the Pre-Basel II values range from 17.513 to 26.088 with a mean value of $\mu_{p\,(H1,SME)} = 21.919$ and a variance of ${\sigma^2}_{p\,(H1,SME)} = 4.771$. The Post-Basel II values are shifted to the right and range from 18.86 to 28.772 with a mean value of 23.657 and a similar variance of 4.347. Finally, the delta index values range from – 5.68 to 7.285, having a mean value of 1.184 (> 0) and a variance of 6.437.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$H1_{p\,(SME)}$	17.513	26.088	21.919	21.923	4.771	2.184	-0.015
$H1_{f\,(SME)}$	18.86	28.772	23.657	23.875	4.347	2.085	0.027
$H1_{\Delta\,(SME)}$	-5.68	7.285	1.184	0.787	6.437	2.537	0.168

Table 7 Basic statistics of H1 index values Pre- / Post-Basel II (SMEs)

As described in section 5.1, it is checked whether the Pre-Basel II and the Post-Basel II index values, from an SME perspective, are significantly different in order to test H1. A standard test procedure which can be applied, under the assumption that the underlying index value are normally distributed and the two samples yield similar variances (which can be treated as equal, see justification below), is the paired t-test. In the given case, it tests the null-hypothesis of equal Pre- and Post-Basel II mean index values (H_0) against the alternative that $\mu_{p\,(H1,SME)}$ and $\mu_{f\,(H1,SME)}$ differ from each other (H_1). Hence H_0 and H_1 are given by:

Paired t-test: $H_0 : \mu_{p\,(H1,SME)} = \mu_{f\,(H1,SME)} \qquad H_1 : \mu_{p\,(H1,SME)} \neq \mu_{f\,(H1,SME)}$

In order to support H1, it is desirable to reject H_0 on a given significance level of $\alpha = 5\%$. Applying the paired t-test shows that the difference of $\mu_{p\ (H1,SME)}$ and $\mu_{f\ (H1,SME)}$ is statistically significant (see Table 8). The test statistic of $t = -3.5854$ results in a p-value of $p = 0.0006911$. Hence, the null-hypothesis that the means of Pre- and Post-Basel II index values are equal is rejected on a significance level of 5% (α =0.05).

	Paired t-test	
	Test stat t	p-value
$H1_{\Delta\ (SME)}$	-3.5854	0.0006911

Table 8 Paired t-test results for H1 (SMEs)

The paired t-test can be applied because homoscedasticity exists as the variances of the Pre- and Post-Basel II index values ($\sigma^2_{p\ (H1,SME)} = 4.771$, $\sigma^2_{f\ (H1,SME)} = 4.347$) are similar (see Table 7) and can be treated as equal. In order to justify the second underlying assumption of the paired t-test (normal distribution of Pre- and Post-Basel II index values), histograms, boxplots and Q-Q plots are illustrated below.

In addition to the graphical analysis, the Kolmogorov-Smirnov (KS) test for normality is provided. The KS-test provides evidence (see Table 9) that the index values are normally distributed. It tests the hypothesis, H_0, that the given sample follows a Gaussian distribution. The KS-test statistics of $D_{p\ (H1,SME)} = -0.0838$, $D_{f\ (H1,SME)} = 0.1042$ and $D_{\Delta\ (H1,SME)} = 0.1007$ result in p-values of $p_{p\ (H1,SME)} = 0.382$, $p_{f\ (H1,SME)} = 0.1144$ and $p_{\Delta\ (H1,SME)} = 0.144$ for Pre- and Post-Basel II and Delta index values. All p-values are bigger than 0.05. Hence, the assumption that the underlying Pre- and Post-Basel II and Delta index values, which are normally distributed, cannot be rejected based on a significance level of 5%.

	Kolmogorov-Smirnov (KS) test	
	Test stat D	p-value
$H1_{p\ (SME)}$	0.0838	0.382
$H1_{f\ (SME)}$	0.1042	0.1144
$H1_{\Delta\ (SME)}$	0.1007	0.144

Table 9 Normality test results for H1 (SMEs)

Figure 44 shows histograms of Pre- and Post-Basel II index values. The red line displays the theoretical density of a normal distributed random variable with mean and variance variables adjusted to the respective index data. Both histograms show a reasonably good fit to the normal density. The empirical densities show nearly no skewness (see Table 7: a slight negative skewness of $\gamma = -0.015$ for Pre-Basel II index and a slight positive skewness of $\gamma = 0.027$ for the Post-Basel II index, see Huizingh, 2007) which is also a property of the normal distribution.

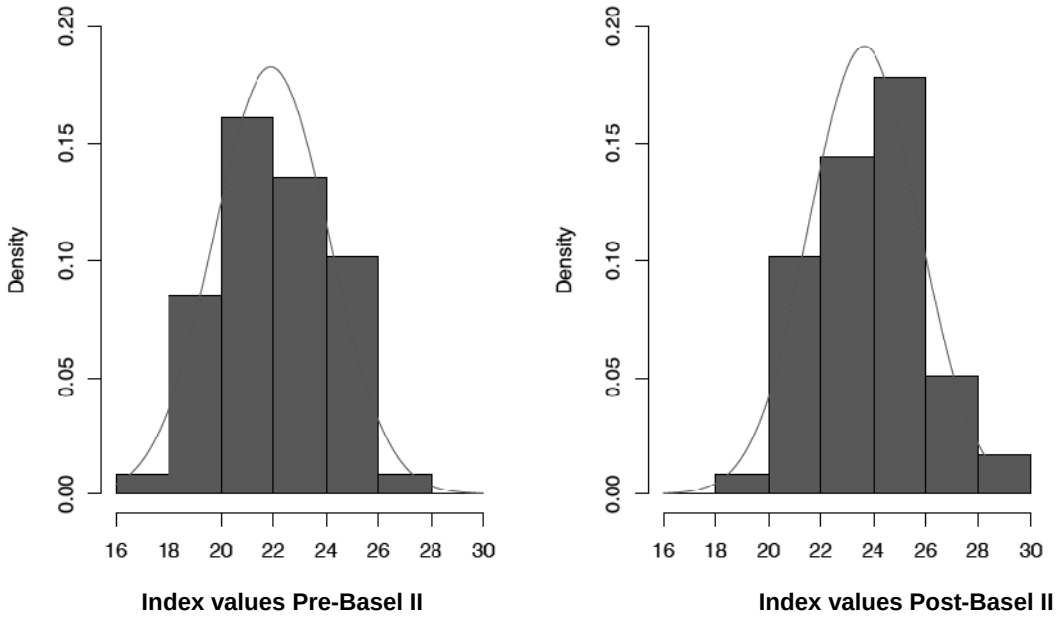

Figure 44 Histograms of Pre- and Post-Basel II index values including normal density plots (red line) regarding H1, SMEs

Figure 45 to Figure 47 provide, on the left-hand side, boxplots of the index values calculated for Pre- and Post-Basel II values as well as the delta of Pre- and Post-Basel II index values. The right-hand side show Q-Q plots of the respective data.

All three Q-Q plots show a reasonably good fit, to theoretical normal quantiles, which indicates that the assumption of normal distributed index values (Pre-Basel II, Post-Basel II and delta values) is valid. This result is in line with the normality tests provided in Table 9.

Yet, in the upper and lower tail of the Q-Q plots, the fit of the index values with the Q-Q line is questionable; however, as these values are connected to extreme index values and the majority of the values show good fit, the overall fit is reasonably good.

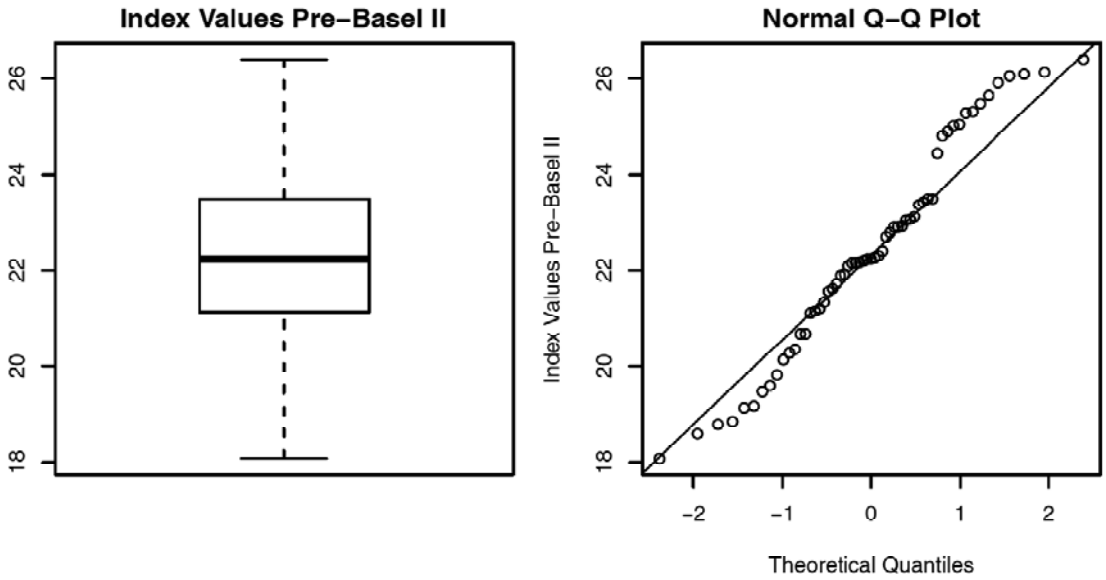

Figure 45 Boxplot and Q-Q plot, Pre-Basel II (H1, SMEs)

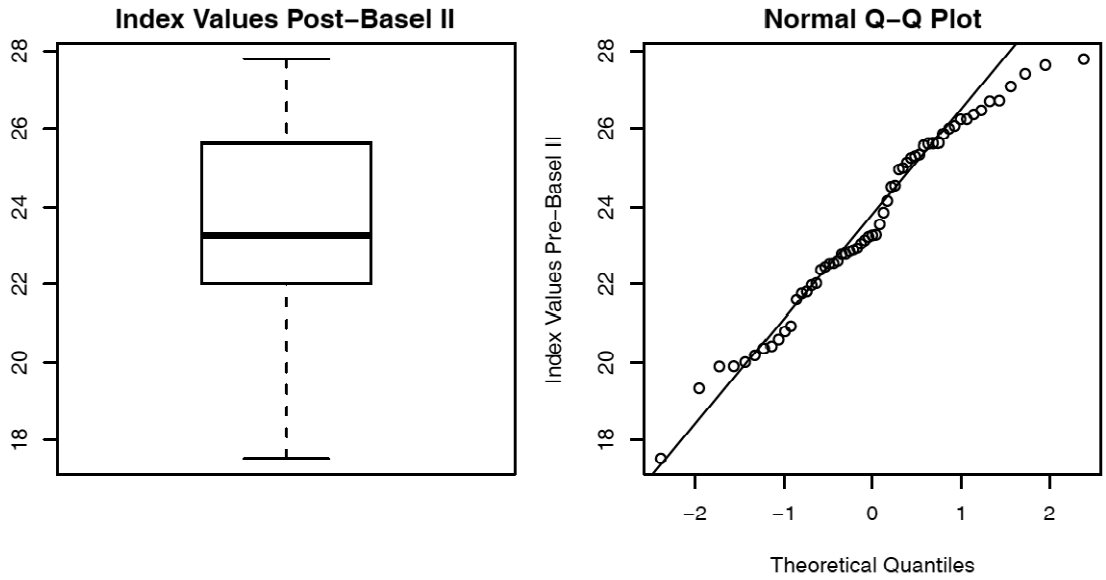

Figure 46 Boxplot and Q-Q plot Post-Basel II (H1, SMEs)

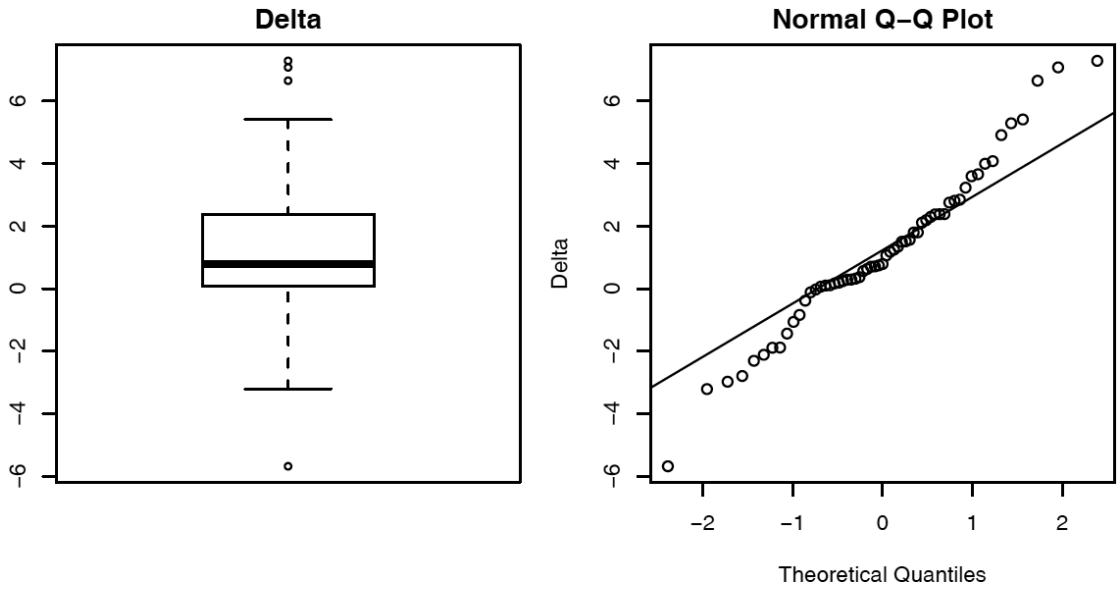

Figure 47 Boxplot and Q-Q plot Delta for H1, SMEs (Pre-Basel II to Post-Basel II)

In the delta index values boxplot there are four outliers. The outlier at the lower scale belongs to a small construction company. According to the interviewees in the qualitative (background gathering) phase, the construction sector is strongly relying on bank / subsidised credits and benefit from subsidies in the construction industry. The three outliers at the upper scale comprise of micro and small enterprises from the logistics, food and IT

industries. As stated in the supply section 2.9.1, some authors, like Frey and Kuhn (2007), Gregory *et al* (2005) or Troubridge (2008), argue that smaller SMEs are affected stronger by Basel II in terms of credits, as primarily the medium-sized SMEs have access to non-bank financing options.

The Kolmogorov-Smirnov (KS) tests, as well as the descriptive statistics (histograms, boxplots and Q-Q plots), provide evidence that the Pre- and Post-Basel II index values and the delta index values are normally distributed. These results are in line with those of Blumberg *et al* (2005, as described in section 4.3.4) and the arguments provided by the CLT (Gujarati, 2003:109) concerning having a sample size larger than 30 items. However, as this assumption might be questioned, due to the deviations at the lower and upper ends of the index values, a Wilcoxon signed-rank test is carried out in addition to the paired t-test, in order to test H1 because this non-parametric test does not require distributional assumptions of the underlying index data. As described in section 4.3.4, the Wilcoxon signed rank test checks whether the median of the delta index value is equal to zero (H_0) or not (H_1). In order to support H1, it would be meaningful to check whether the median is smaller than zero or not. By formulating the null hypothesis, in terms of the mean index values, this results in the following:

Wilcoxon signed-rank test:

$$H_0 : \mu_{p\,(H1,SME)} \geq \mu_{f\,(H1,SME)} \qquad H_1 : \mu_{p\,(H1,SME)} < \mu_{f\,(H1,SME)}$$

Applying the Wilcoxon signed-rank test shows that the change of $\mu_{p\,(H1,SME)}$ and $\mu_{f\,(H1,SME)}$ is statistically significant (see Table 10). The test statistic of $W = 1{,}228.0$ results in a p-value of $p = 0.005856$. The mean of the Post-Basel II index value ($\mu_{f\,(H1,SME)} = 23.657$) is bigger than the mean of the Pre-Basel II index value ($\mu_{p\,(H1,SME)} = 21.919$) as shown in Table 7. Hence, the null-hypothesis, that the mean of Pre-Basel II index value is greater or equal

than the mean of the Post-Basel II index value, is rejected on a significance level of 5% (α =0.05).

	Wilcoxon signed-rank test	
	Test stat W	p-value
$H1_{\Delta\,(SME)}$	1,228.0	0.005856

Table 10 Wilcoxon signed-rank test results for H1 (SMEs)

As H_0 is rejected on a significance level of 5% (see above, paired t-test and Wilcoxon signed-rank test) and the delta index values are a measurement for the 'house bank principle' (as explained in section 4.2.3 and 4.2.4), this provides evidence regarding H1 from an SME's perspective. Hence, the 'house bank principle is deteriorating' from an SME perspective.

Correlations regarding H1 SMEs

Figure 48 illustrates the correlation of the items regarding H1. In the lower left area which is shaded in red, the Pre-Basel II correlations are shown, whereas in the upper right area the respective Post-Basel II values are illustrated in green.

The following analysis focuses on stronger correlations only (> 0.4). These values still can be regarded as low or moderate collinearity with regards to the Ballentine view of multicollinearity (Gujarati, 2003:344). As no high or very high multicollinearity exists, in line with Gujarati (2003:363), the author relates to Blanchard's school of thought which is 'do nothing' as 'multicollinearity is God's will, not a problem'.

	Usage of Bank Credit	Usage of SME subsidies	No. of phone call	No. of meeting	Financial Overdraft	Credit rate development	Credit declines	Imp. of Non-Credit Fin.	Gen Rejection Criteria
Usage of Bank Credit	**1**	**0.49**	**-0.07**	**-0.18**	**0.00**	**0.04**	**0.01**	**-0.45**	**-0.05**
Usage of SME subsidies	**0.41**	**1**	**0.07**	**0.02**	**0.16**	**0.04**	**-0.08**	**-0.58**	**0.01**
No. of phone call	**-0.25**	**-0.13**	**1**	**0.70**	**0.05**	**0.31**	**-0.01**	**-0.11**	**-0.18**
No. of meeting	**0.00**	**-0.10**	**0.54**	**1**	**0.34**	**0.29**	**-0.14**	**-0.11**	**-0.25**
Financial Overdraft	**0.02**	**-0.07**	**0.13**	**0.31**	**1**	**0.12**	**0.13**	**-0.13**	**-0.04**
Credit rate development	**0.08**	**-0.04**	**0.14**	**0.19**	**0.18**	**1**	**-0.16**	**0.08**	**-0.01**
Credit declines	**0.23**	**0.13**	**-0.23**	**-0.30**	**-0.03**	**-0.09**	**1**	**-0.08**	**0.31**
Imp. of Non-Credit Fin.	**-0.50**	**-0.60**	**0.17**	**0.05**	**0.08**	**-0.02**	**-0.07**	**1**	**-0.08**
Gen Rejection Crit.	**-0.01**	**0.08**	**-0.00**	**0.04**	**0.10**	**-0.04**	**0.06**	**0.21**	**1**

Figure 48 Estimated correlations for items used in the SME index for H1 using Pre-Basel II data

By analysing the correlation values, it shows that 'usage of bank credits' and 'usage of subsidised credits' are positively correlated ($\rho_p = 0.41$ and $\rho_f = 0.49$) from a Pre- as well as from a Post-Basel II perspective. Subsidised credits are partly, state guaranteed credits with lower credit rates for the SME and lower risks for the banks (see section 2.9.3). They are handed out by the 'house bank' (BdB, 2005). Therefore, this correlation seems comprehensible as the SMEs which rely on credits will try to lower their rates by using subsidies. On the other hand, banks will try to reduce their risk by obtaining access to state guarantees. This is in line with the

findings from the qualitative analysis in section 6; for example, by quotes from a micro enterprise or a state owned bank.

A similar positive correlation can be found for the Pre- and Post-Basel II values of 'number of phone calls' and 'number of meetings' ($\rho_p = 0.54$ and $\rho_f = 0.70$). The rationale behind this is that the number of meetings and number of phone calls are both indicators for the intensity of communication with the banks which seems to be influenced by Basel II in a positive way.

As the literature review (in section 3.3) provides evidence that SMEs are reluctant to financial communications (see Drahten, 2007, and Diller *et al*, 2005), this indicates that there is a certain enhanced pressure to communicate more intensively in a correlated way – by phone and by personal meetings. Finally, there is a negative Pre- and Post-Basel II correlation from 'importance of non-Bank credit financing' with 'usage of bank credits' ($\rho_p = -0.50$ and $\rho_f = -0.45$) on the one hand, and with 'usage of bank subsidised credits' ($\rho_p = -0.60$ and $\rho_f = -0.48$) on the other hand. As stated above, the standard bank credits and subsidised credits are correlated. This is in line with the literature review (see Achleitner and Geidner, 2007, Frommann, 2006a or Nitschke and Kuper, 2007, for example) as non-credit forms of finance are often used as substitutes to credit financing which explains the negative correlation. Furthermore, this is in line with the findings from the qualitative analysis (see section 6.5.2), especially concerning the statements from a stated-owned private equity company or a big savings bank.

Multiple linear regression for H1 SMEs

Testing H1 from an SME's perspective, using the model above, provides evidence that the 'house bank principle is deteriorating' from an SME's perspective. Therefore, in a next step, the question arises as to whether this

deterioration could be explained by factors characterising the SMEs. In order to achieve this, a variety of possible factors influencing the house bank principle were chosen. Among these factors seven are extracted which provide the 'best' linear regression model, according to the so called 'Akaike Information Criterion' (henceforth, AIC, see Train, 2009:367). In principle the AIC measures the fit of the considered model (see Gujarati, 2003:219), but it also takes into account the model complexity by introducing a penalty term depending on the number of variables used (Akaike, 1974).

The resulting linear regression model consists of seven covariates and a slightly negative intercept (-0.53). Hence, the house bank principle of an SME could be explained by:

$$\Delta \mathrm{Y}_{\mathrm{H1}}^{\mathrm{SME}} = -0.53 + 0.01 * X_1^{SME,1} + 0.47 * X_2^{SME,2} + 1.36 * X_{4,\Delta}^{SME,3} + 1.44 * X_{6,\Delta}^{SME,3} - 0.81 * X_2^{SME,7} + 0.66 * X_5^{SME,7} - 0.61 * X_{3,\Delta}^{SME,8} .$$

The variable description can be found in the codebook in Table 48 (see Appendix D).

It is observable that the 'company age' ($X_1^{SME,1}$), the extent of 'influence of the subprime crises on corporate financing' ($X_2^{SME,2}$), the changes of the 'company strategy focus on quality' ($X_{4,\Delta}^{SME,3} = X_{4,f}^{SME,3}$ - $X_{4,p}^{SME,3}$) and the changes of the 'company strategy focus on costs' ($X_{6,\Delta}^{SME,3} = X_{6,f}^{SME,3}$ - $X_{6,p}^{SME,3}$), as well as the 'importance of press / the internet as source of information' ($X_5^{SME,7}$), all have a positive influence on the change of the house bank principle (see Table 11, column 1). On the other hand, the 'importance of non-banks as information source' ($X_2^{SME,7}$) as well as the changes in the assessment of 'company potential regarding management' ($X_{3,\Delta}^{SME,8} = X_{3,f}^{SME,8}$ - $X_{3,p}^{SME,8}$) have a negative influence on the changes of the index value.

According to the p-values in Table 11, the delta values 'company strategy focus regarding quality' ($X_{4,\Delta}^{SME,3}, P = .04$) and 'company strategy focus regarding cost' ($X_{6,\Delta}^{SME,3}, P = .03$), as well as the 'importance of non-bank as information source' ($X_{2}^{SME,7} = .03$) and the delta value of 'company potential as regards management' ($X_{3,\Delta}^{SME,8} = .01$), are statistically significant. The other covariates show p-values between 0.1 and 0.2. However, these variables add explanatory power to the model as the overall model fit (according to the AIC) is sufficient as shown below. The overall F-statistic (see Gujarati, 2003:219) is 2.17, on 7 and 37 degrees of freedom, which results in a p-value of .059. This means that the F-test, using the null-hypothesis that all variable coefficients are zero, will (Robson, 2002:442) be rejected at a confidence level of 0.1 but could not be rejected at a confidence level of 0.05. Furthermore, the multiple R-squared of 0.291 is sufficient. The multiple R-squared measures the variation in the data explained by the model (Gujarati, 2003:81-87). Hence, the model is capable of explaining about 30% of the variation inherited in the index data.

Coefficients	Parameter Estimate	Std. Error	P-Value
Intercept	-0.53	1.86	0.78
$X_{1}^{SME,1}$	0.01	0.01	0.19
$X_{2}^{SME,2}$	0.47	0.28	0.10
$X_{4,\Delta}^{SME,3}$	1.36	0.61	0.03
$X_{6,\Delta}^{SME,3}$	1.44	0.68	0.04
$X_{2}^{SME,7}$	-0.81	0.36	0.03
$X_{5}^{SME,7}$	0.66	0.47	0.17
$X_{3,\Delta}^{SME,8}$	-0.61	0.25	0.01

Table 11 Overview of H1 SME regression coefficients

In order to evaluate the fit of the proposed model, it is necessary to take a look at regression diagnostics. Therefore, the (Pearson) residuals of the model are plotted against the fitted values (see Figure 49).

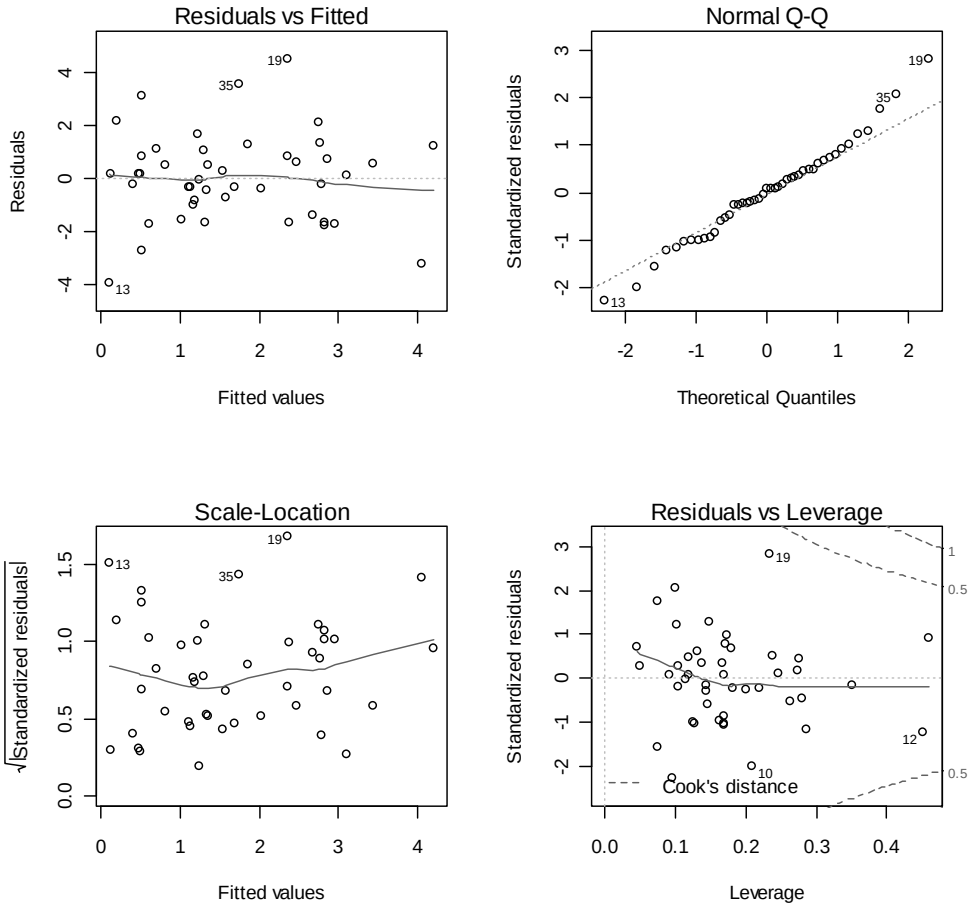

Figure 49 Regression diagnostics for H1 SME

As the plot in Figure 49 does not show any particular pattern or indicates some sort of functional relationship, the residuals indicate a reasonably good fit to the given data. Furthermore, it is important to check the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Figure 49 provides a Q-Q plot and a Scale-Location plot of the standardised residuals against the fitted values. Both plots do not indicate a severe model misspecification. The residuals in the Q-Q plot are reasonably close to the Q-Q line which indicates normality of those. In addition, the

Scale-Location plot does not indicate strong variations among the variances. The last plot shows the so called Cooks distance of each residual. The Cooks distance is a measure of the influential power of an observation to the model (Cook, 2000). In general, the critical value is chosen to be 1. As the plot does not show any observations exhibiting a Cooks distance of greater than one, there are no influential observations.

5.4.2 H1: Model testing from a financier's perspective

In order to test H1 from a financier's perspective, the returned data from the financier questionnaires were used for this section. The index measuring the extent of the 'deterioration of the house bank principle' includes the five variables as displayed in Table 12. As discussed in section 5.4.1, the justification of the variables selected can be found in Appendix B which is based on the author's background gathering phase (see section 4.3) and the literature review (see section 3).

The respective financiers' codebook regarding the financiers' variables can be found in Table 49, within Appendix D. Alike with section 5.4.1, variable 1 ('negative influence') was inverted, '4 L' means that the variables comprise a four item Likert scale, '1-4' represent the transformed variable with values between 1 and 4. The generic rejection criteria (variable 5) are defined as stated in the respective SME model in section 5.4.1.

In terms of 'number of sources provided' and 'number of phases supported', the financiers could select one to seven variables, regarding 'number of sectors supported', the selection ranges from one to 15. Therefore, like with the three item Likert scales (see section 5.4.1), the values were transformed to a scale from 1 to 4 again (variable 2, 3 and 4).

In cases of banks, a decrease in number of sources, phases and sectors (hence variables 2, 3 and 4 are 'negative' regarding banks) indicates that banks withdraw from SME financing which supports H1 ('deterioration of

house bank principle'). Therefore for banks, the values are inverted ('negative' influence). Contrary to non-bank financiers, an increase (rather than a decrease as with banks) in number of sources, phases and sectors (hence variables 2, 3 and 4 are 'positive' regarding non-bank financiers) indicates that non-bank financiers fill in the gap left by banks which supports H1 as well ('deterioration of house bank principle'). Variable 5 corresponds to variable 8 in the SME section of H1 (arithmetic average of non-credit sources of external finance) and variable 6 to variable 9, in the respective SME section of H1 (two generic rejection criteria), as described in section 5.4.1.

Number	Variable	Label	Influence	Scale
1	$X_{3,p/f}^{FIN,4}$	Usage of bank credits	Negative	4 L
2	$X_{1,p/f}^{FIN,I1}$	Number of sources provided	Non-banks: pos. / Banks: negative	1-4
3	$X_{1,p/f}^{FIN,I2}$	Number of phases supported	Non-banks: pos. / Banks: negative	1-4
4	$X_{1,p/f}^{FIN,I3}$	Number of sectors supported	Non-banks: pos. / Banks: negative	1-4
5	$X_{1,p/f}^{FIN,I4}$	Avg. imp. of non-credit financing	Positive	1-4
6	$X_{1,p/f}^{FIN,I5}$	Average generic rejection criteria	Positive	1-4

Table 12 Variables for H1 financiers

Testing H1 financiers

Let $Y_{H1,p/f}^{FIN}$ denote the index value for Pre- / Post-Basel II assessments regarding H1.

Then $Y_{H1,p/f}^{FIN}$ is defined as:

$$Y_{H1,p}^{FIN} := X_{3,p}^{FIN,4} + X_{1,p}^{FIN,I1} + X_{1,p}^{FIN,I2} + X_{1,p}^{FIN,I3} + X_{1,p}^{FIN,I4} + X_{1,p}^{FIN,I5}$$

$$Y_{H1,f}^{FIN} := X_{3,f}^{FIN,4} + X_{1,f}^{FIN,I1} + X_{1,f}^{FIN,I2} + X_{1,f}^{FIN,I3} + X_{1,f}^{FIN,I4} + X_{1,f}^{FIN,I5}$$

The delta between Pre-Basel II and Post-Basel II values is defined as:

$$\Delta Y_{H1}^{FIN} := Y_{H1,f}^{FIN} - Y_{H1,p}^{FIN}$$

Table 13 provides some basic statistics of the index values regarding H1, in terms of financiers. The Pre-Basel II values range from 6.071 to 20.233, with mean $\mu_{p\,(H1,FIN)} = 10.405$ and variance ${\sigma^2}_{p\,(H1,FIN)} = 7.475$. The Post-Basel II values are shifted to the right and range from 6.81 to 20.233, with a mean value of 11.390 and a variance of 8.354. The delta index values range from -0.676 to 4.34, with a mean value of 0.984 and a variance of 1.101.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$H1_{p\,(FIN)}$	6.071	20.233	10.405	9.952	7.475	2.734	1.09
$H1_{f\,(FIN)}$	6.810	20.233	11.390	10.714	8.354	2.890	0.816
$H1_{\Delta\,(FIN)}$	-0.676	4.34	0.984	0.779	1.101	1.049	0.807

Table 13 Basic statistics of H1 index values Pre- / Post-Basel II (financiers)

As described in section 5.1, it is checked whether the Pre-Basel II and the Post-Basel II index values, from a financier's perspective, are significantly different in order to test H1. As illustrated above (Table 13), homoscedasticity can be assumed as the variances of the Pre- and Post-Basel II Index (${\sigma^2}_{p\,(H1,FIN)} = 7.475,\ \ {\sigma^2}_{f\,(H1,FIN)} = 8.354$) values are similar. The slight enhancement, of the variances from Pre- to Post-Basel II, indicate that the assessment of the future values is a bit vaguer when compared to the historic ones. Therefore, under the assumption of normally distributed index values, the paired t-test is used to check whether H1 is supported or not. Now, the null hypothesis and respective alternative hypothesis are given by (see SME test of H1 in section 5.4.1):

Paired t-test:

$$H_0 : \mu_{p\,(H1,FIN)} = \mu_{f\,(H1,FIN)} \qquad H_1 : \mu_{p\,(H1,FIN)} \neq \mu_{f\,(H1,FIN)}$$

Applying the paired t-test shows that the difference of $\mu_{p\,(H1,FIN)}$ and $\mu_{f\,(H1,FIN)}$ is statistically significant (see Table 14). The test statistic of $t = -7.5645$ results in a p-value of p = 1.890E-10. Hence, the null-hypothesis, that the means of Pre- and Post-Basel II index values are equal, is rejected on a significance level of 5% (α =0.05).

	Paired t-test	
	Test stat t	p-value
$H1_{\Delta\,(FIN)}$	-7.5645	1.890E-10

Table 14 Paired t-test results for H1 (financiers)

Again, justification regarding the normality assumption of the Pre- and Post-Basel II index values is needed. Similar to the SME section 5.4.1, histograms, boxplots and Q-Q plots are provided as graphical tools and, in addition, the KS-test for normality is applied.

Figure 50 shows the histograms of Pre- and Post-Basel II index values. Again, the red line displays the theoretical density of a normal distributed random variable with the mean and variance variable adjusted to the underlying data. The empirical densities show a positive skewness ($\gamma = 1.09$ for Pre-Basel II index and $\gamma = 0.816$ for the Post-Basel II index, see Table 13). This indicates that values which are on the left side of the mean (lower as the mean), are more likely to occur than values on the right side of the mean (higher as the mean). Both histograms do not show a proper fit to the normal density.

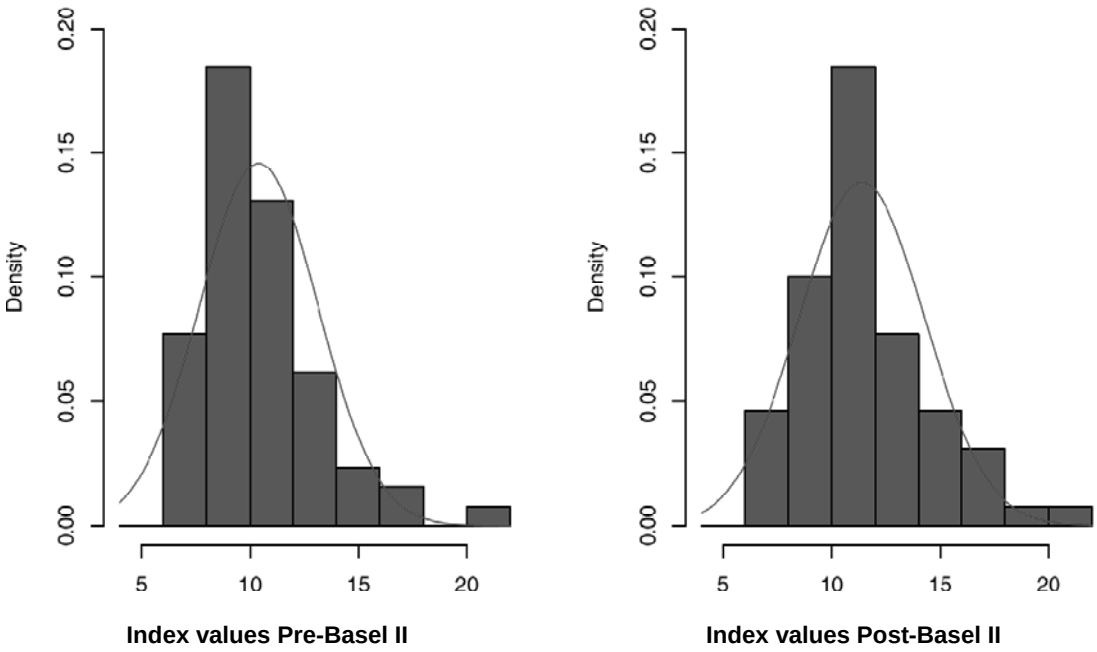

Figure 50 Histograms of Pre- and Post-Basel II index values including normal density plots (red line) regarding H1, financiers

Figure 51 to Figure 53 show, on the left-hand side, boxplots of the index values calculated for the Pre-Basel II (past) and Post-Basel II (future) index values as well as the delta of Pre- and Post-Basel II index values for financiers regarding H1. The right-hand side shows Q-Q plots of the respective data.

Only the delta Q-Q plot shows a reasonably good fit to theoretical normal quantiles which indicates that the assumption of normally distributed delta index values is valid. In contrast, Pre- and Post-Basel II Q-Q plots show only a good fit within a limited section with strong deviations, especially in the upper section. This is in line with the normality tests, provided in Table 15, which reject the assumption that the Pre- and Post-Basel II index values are normally distributed.

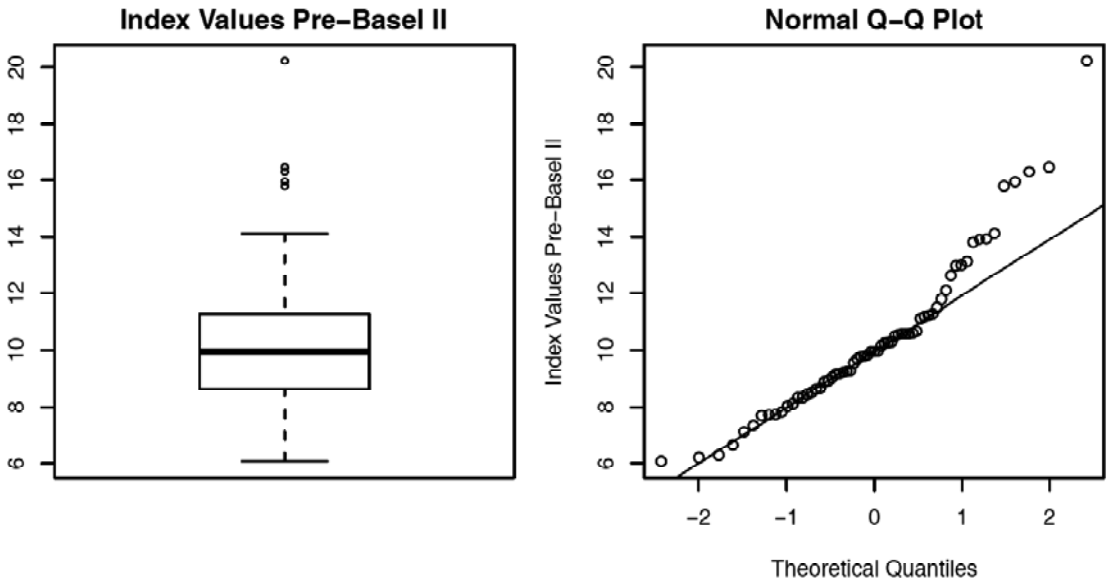

Figure 51 Boxplot and Q-Q plot Pre-Basel II (H1, financiers)

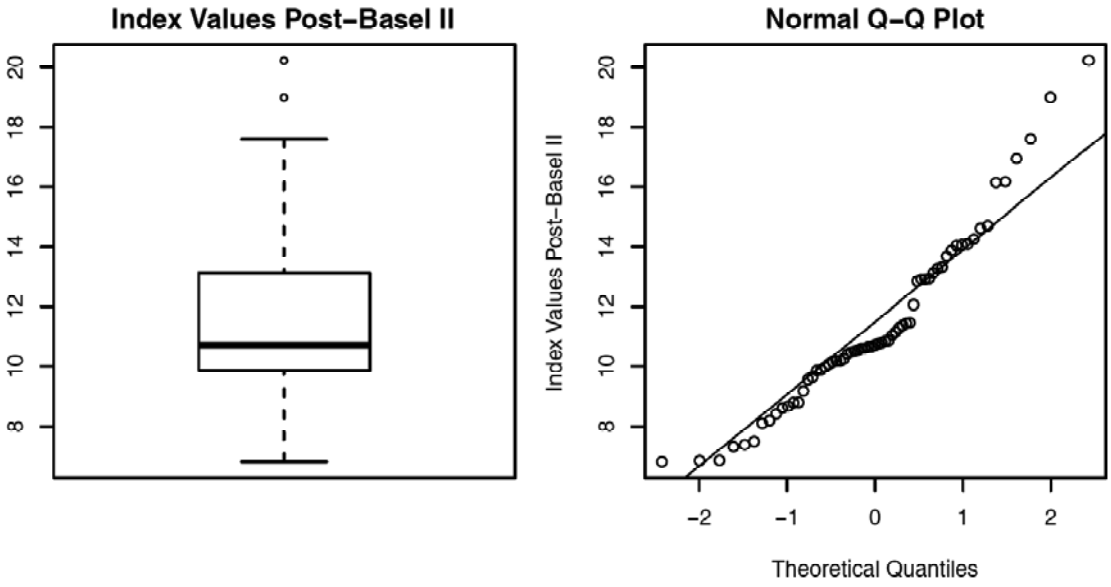

Figure 52 Boxplot and Q-Q plot Post-Basel II (H1, financiers)

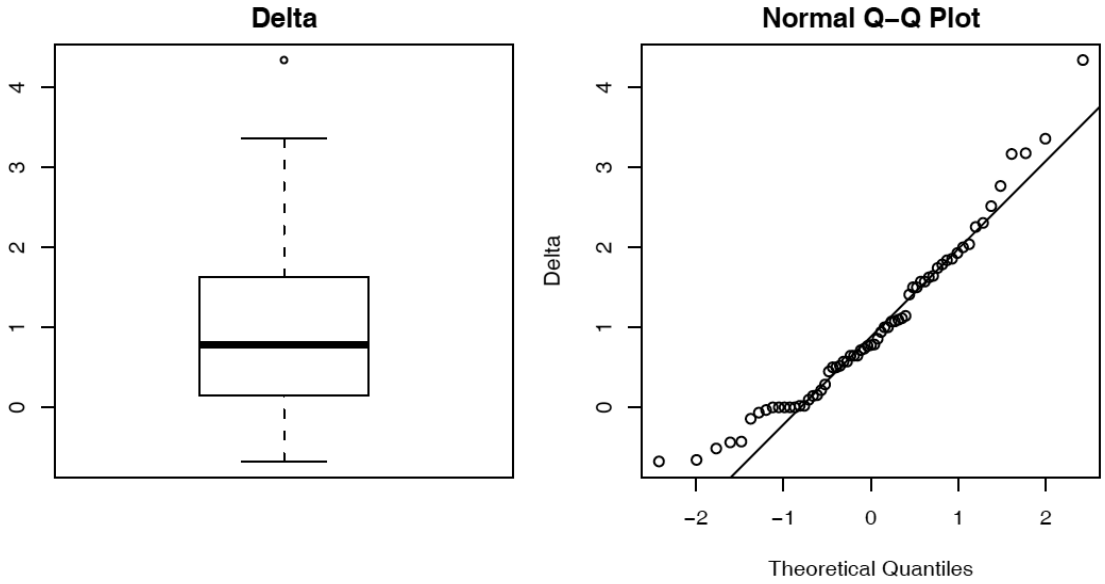

Figure 53 Boxplot and Q-Q plot delta for H1, financiers (Pre-Basel II to Post-Basel II)

All outliers comprise of non-bank financiers and such financiers which provide private equity only. They can be regarded as the other end of the scale in terms of bank credit, as it implies ownership and control rather than granting money in exchange of credit rates. The two outliers regarding the Post-Basel II boxplots values are already included in the Pre-Basel II boxplots.

The Kolmogorov-Smirnov (KS) test provides evidence (see Table 15) that the index values are only normally distributed regarding the delta index. The KS-test statistics of $D_{\Delta\,(H1,FIN)} = 0.1015$ results in a p-value of $p_{\Delta\,(H1,FIN)} = 0.09369$. The p-value for the delta index values is bigger than 0.05. This means that the assumption that the underlying delta index values are normally distributed cannot be rejected, given a significance level of 5%.

On the other hand, this cannot be concluded for the Pre- and Post-Basel II index, where the assumption of normally distributed Pre- and Post-Basel II index values is rejected: KS-test statistics of $D_{p\,(H1,FIN)} = 0.1532$ and $D_{f\,(H1,FIN)} = 0.1509$ result in p-values of $p_{p\,(H1,FIN)} = 0.0006423$ and $p_{f\,(H1,FIN)} = 0.0008445$.

	Kolmogorov-Smirnov (KS) test	
	Test stat D	p-value
$H1_{p\,(FIN)}$	0.1532	0.0006423
$H1_{f\,(FIN)}$	0.1509	0.0008445
$H1_{\Delta\,(FIN)}$	0.1015	0.09369

Table 15 Normality test results for H1 (financiers)

Hence, the null hypothesis of normally distributed Pre- and Post-Basel II index values is rejected on a significance level of 5%. As described above, the Q-Q plots indicate that, at least in the Pre- and Post-Basel II cases, problems with normality also exist. Therefore, the paired t-test which relies on the normality assumption is not meaningful for the financiers' perspective of H1 and the non-parametric Wilcoxon signed-rank test is applied, as this test does not make assumptions on the distribution of the underlying values: the assumption of normally distributed index values is not necessary. As a 'positive shift' in the index values from Pre- to Post-Basel II is of interest, a version of the standard Wilcoxon signed-rank test is used which tests directly for 'higher' Post-Basel II values in relation to Pre-Basel II ones (see section 5.4.1). Hence, the null hypothesis of $\mu_{p\,(H1,FIN)}$ being higher or equal than $\mu_{f\,(H1,FIN)}$ is tested against the alternative that $\mu_{p\,(H1,FIN)} < \mu_{f\,(H1,FIN)}$.

Wilcoxon signed-rank test:

$$H_0 : \mu_{p\,(H1,FIN)} \geq \mu_{f\,(H1,FIN)} \qquad H_1 : \mu_{p\,(H1,FIN)} < \mu_{f\,(H1,FIN)}$$

The results of the Wilcoxon signed-rank test shows that the change of $\mu_{p(H1,FIN)}$ and $\mu_{f(H1,FIN)}$ is statistically significant (see Table 16). The test statistic of $W = 1{,}619.5$ results in a p-value of $p = 0.01092$. Hence, the null-hypothesis, that the mean of Pre-Basel II index values is greater or equal than the mean of the Post-Basel II index values, is rejected on a significance level of 5% (α =0.05).

	Wilcoxon signed-rank test	
	Test stat W	p-value
$H1_{\Delta\,(FIN)}$	1,619.5	0.01092

Table 16 Wilcoxon signed-rank test results for H1 (financiers)

As H_0 is rejected on a significance level of 5% (see above) and the index values are again a measurement for the 'house bank principle' (as explained in section 4.2.3 and 4.2.4), this provides evidence regarding H1 from a financier's perspective. Hence the 'house bank principle is deteriorating' from an SME perspective.

Correlations regarding H1 financiers

Figure 54 illustrates the correlation of the financier items regarding H1. Again, in the lower left area (shaded in red), the Pre-Basel II correlations are shown, whereas in the upper right area the Post-Basel II values are illustrated (in green).

	Usage of bank credits	No. of sources provided	No. of phases supported	No. of sectors supported	Importance of non-credit fin.	Generic rejec. criteria
Usage of bank credits	**1**	**0.09**	**-0.09**	**0.01**	**0.12**	**0.34**
Number of sources provided	**0.18**	**1**	**0.21**	**0.43**	**-0.01**	**0.10**
No. of phases supported	**0.09**	**0.24**	**1**	**0.52**	**0.06**	**-0.12**
No. of sectors supported	**0.07**	**0.37**	**0.52**	**1**	**0.14**	**-0.02**
Importance of non-credit fin.	**0.12**	**0.05**	**0.01**	**0.08**	**1**	**0.09**
Generic rejection criteria	**0.02**	**0.07**	**-0.18**	**-0.06**	**0.34**	**1**

Figure 54 Estimated correlations for items used in the financiers' index for H1 using Pre-Basel II data

By analysing the correlation values, it shows that the 'number of sectors supported' is positively correlated, on a Pre- and Post-Basel II basis, with the 'number of sources provided' ($\rho_p = 0.37$ and $\rho_f = 0.43$) as well as with the 'number of phases supported' ($\rho_p = 0.52$ and $\rho_f = 0.52$).

This seems a valid rationale which underpins the findings from the background gathering phase as well as those from the qualitative interviews (see section 6). The more sectors financiers have in their sweetspot, the more phases they have to support and therefore the more means of finance they have to provide. For example, a leading German seed investor stated that within the young high-tech industry 'per se', no credits are granted due to the high risks and the lacking track record of innovative firms in this sector. On the other hand, traditional German industries like the plant and machinery industry, with tightened industry structures, are more capital intensive but normally have more stable positive cash flows. Thus, they require more traditional means of finance like leasing.

Multiple linear regression for H1 FIN

Testing H1 from a financier's perspective, using the model above, provides evidence that 'corporate finance is becoming more difficult for SMEs because the house bank principle is deteriorating'.

Again, the question arises concerning how characterising factors of the financiers influence this appraisal. In order to achieve this, a variety of possible factors influencing the deterioration of the house bank principle from a financier's perspective are chosen. Five of those are extracted which provide the 'best' linear regression model according to the AIC (Train, 2009:367). The resulting linear regression model consists of five covariates and a negative intercept (-1.33). Hence, the change of the house bank principle from a financier's perspective could be explained by:

$\Delta \mathrm{Y}_{\mathrm{H1}}^{\mathrm{FIN}} = -1.33 + 0.0002 * X_1^{FIN,1} - 0.00008 * X_4^{FIN,1} + 0.54 * X_4^{FIN,3} + 0.017 * X_{36,\Delta}^{FIN,2} - 0.20 * X_{1,\Delta}^{FIN,I1}$.

The variable description can be found in the codebook in Table 49 (see Appendix D).

The 'number of employees' ($X_1^{FIN,1}$), the 'importance of state owned banks on SME corporate financing' ($X_4^{FIN,3}$) and the change of the 'sweetspot EBIT maximum' ($X_{36,\Delta}^{FIN,2}$) influences the deterioration of the house bank principle from a financier's perspective in a positive manner. By looking at the other regression coefficients, it is observable that the 'volume of funds under management in 2007' ($X_4^{FIN,1}$), i. e. the pre-crises fund-raising volume, as well as the change in 'number of financing sources provided' ($X_{1,\Delta}^{FIN,I1}$), has a negative influence on the deterioration of the house bank principle from a financier's perspective.

According to the p-values in Table 17, the 'number of employees' ($X_1^{SME,1}, P = .03$), the 'importance of state owned banks' ($X_4^{SME,3}, P = .03$) and the change of the 'sweetspot EBIT maximum' ($X_{36,\Delta}^{FIN,2}, P = .04$) are statistically significant. The 'volume of funds under management in 2007' ($X_4^{FIN,1}, P = .06$) and the 'number of financing sources provided' ($X_{1,\Delta}^{FIN,I1}, P = .18$) yielded p-values above .05 and therefore do not show statistical significance. However, these variables add explanatory power to the model because the overall model fit (according to the AIC) is good enough, so they are included.

The overall F-statistic (see Gujarati, 2003:219) is 4.5 on 5 and 38 degrees of freedom, which results in a p-value of .0026. This means that the F-test, using the null-hypothesis that all variable coefficients are zero will (Robson, 2002:442) be rejected at a confidence level of 0.0026 which is a really good result and well beyond .05. Furthermore, the multiple R-squared of 0.3719 is

high. The multiple R-squared measures the variation in the data explained by the model (Gujarati, 2003:81-87). Hence, the model is capable of explaining about 37% of the variation inherited in the index data which is a good value in the context of such data.

Coefficients	Parameter Estimate	Std. Error	P-Value
Intercept	-1.33	0.86	0.13
$X_2^{FIN,1}$	0.0002	0.0001	0.03
$X_4^{FIN,1}$	-0.0008	0.00004	0.06
$X_4^{FIN,3}$	0.54	0.24	0.03
$X_{36,\Delta}^{FIN,2}$	0.017	0.0078	0.04
$X_{1,\Delta}^{FIN,I1}$	-0.20	0.14	0.18

Table 17 Overview of H1 FIN regression coefficients

Regression diagnostics

In order to evaluate the fit of the proposed model, it is necessary to take a look at regression diagnostics. Therefore, again, the (Pearson) residuals of the model are plotted against the fitted values (see Figure 55).

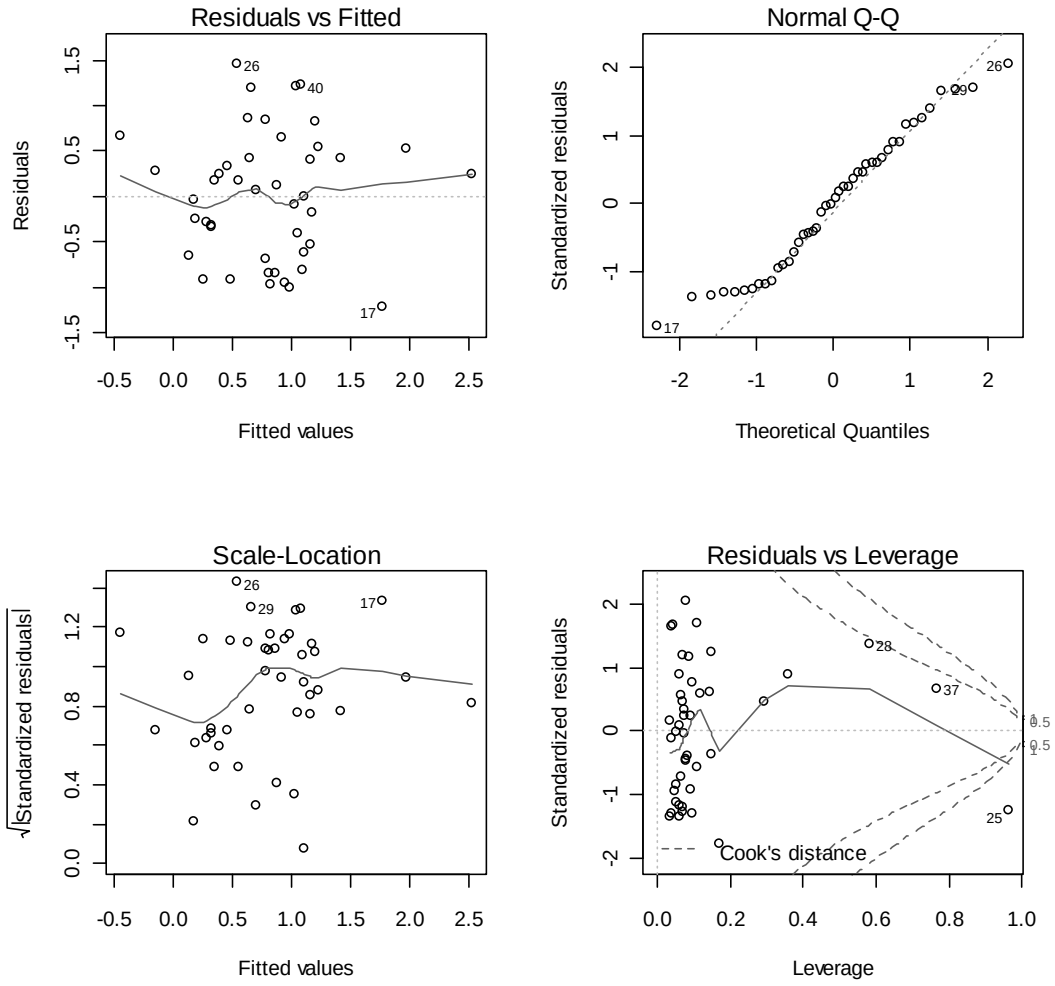

Figure 55 Regression diagnostics for H1 FIN

The plot of the (Pearson) residuals, against the fitted values in Figure 55, shows no particular pattern or any sort of functional dependency. Therefore, based on the residuals, there is no evidence to challenge the fit of the model to the data. The second important part is to check the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Figure 55 provides a Q-Q plot (upper left) and a Scale-Location plot (lower right) of the standardised residuals against the fitted values. The Q-Q plot shows deviations from the normality assumption, mainly in the lower tail, yet, the overall fit is good. Furthermore, the Scale-Location plot does not indicate that the variance for the standardised residuals is changing over the range of

the values in a significant manner. Again, some outliers yield higher standardised residual values but they are not influential which can be observed by looking at the lower right plot. This is in line with the previous results and shows that the model yields a good fit to the provided data.

Again, the last plot shows the so called Cooks distance of each residual as a measure of the influential power of observation to the model. In general, the critical value is chosen to be 1. There is one particular observation with a Cooks distance above one, but this observation is not marked as an outlier in the previous plot; hence, it is not disturbing the model fit. The rest of the observations do not show Cooks distances which are greater than one and are hence not influential.

5.5 TESTING HYPOTHESIS H2

Hypothesis 2 (H2) states that SMEs can cope best with the effect induced by Basel II when they proactively engage in rating, and improve the rating parameters. Again, the justification of the variables chosen for the respective test is provided in section 4.3.4 and in Appendix B. H2 is tested by comparing the means of the SME related index values on a Pre- and Post-Basel II basis (as described in section 5.5.1). Applying the respective tests (mentioned in section 5.1) provides evidence regarding H2 from the SME perspective (SME questionnaire sample), as only SME data were taken into account. H2 evaluates the rating importance from the intrinsic SME perspective only.

Figure 56 illustrates the subset manifest (dependent) variables (grouped by latent variables, see comprehensive overview in section 4.2.4) used in order to test H2 in the following section 5.5.1.

Subset H2: latent / manifest (dependent) variables

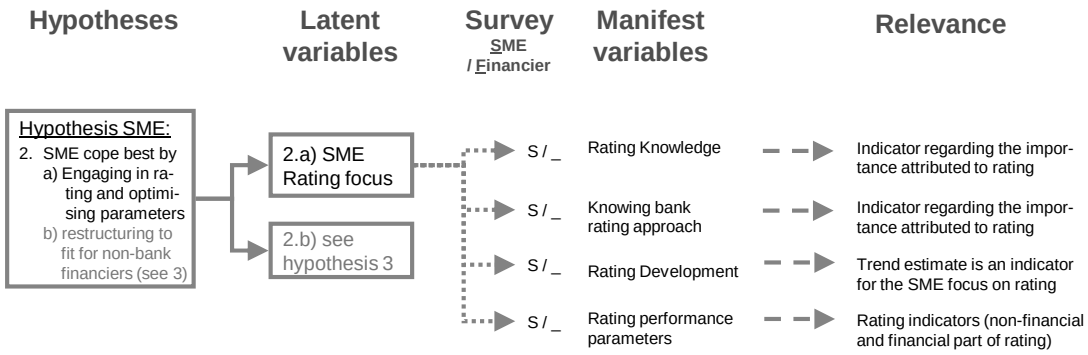

Figure 56 Variables regarding H2

In general (see section 5.5.1), SMEs seem to have 'intuitively' a high alignment to the rating parameters. However, regarding the formal aspects there seems to be a knowledge gap (see $X_8^{SME,9}$ in Table 48): 61.225% of the responding SMEs stated either not to be rated (16.327%) or did not know the rating (44.898%). Furthermore, the knowledge about the rating process of banks is still poor (see $X_1^{SME,9}$ in Table 48): 70.909% of the respondents do not know which rating based approach (SA, F-IRB or A-IRB) their bank was using, which hampers their ability to adjust their strategy accordingly.

5.5.1 H2: Model testing from an SME's perspective

In order to test H2 from an SME perspective, the returned data from the SME questionnaires were used for this section. The index measuring the extent of the 'rating affinity' includes two variables (see Table 18). As discussed in section 5.4.1 the justification of the variables selected can be found in Appendix B. The respective SME codebook regarding the SME variables can be found in Table 48 (within Appendix D). Again, '3 L' comprise a three item Likert scale and '1-4' represent the transformed variable with values between 1 and 4.

The average SME rating potential (variable 2) is defined as the average of the potential variables ($X_{1,p/f}^{SME,8}$ to $X_{7,p/f}^{SME,8}$): profitability, financial situation, management, research and development, production and logistics, marketing and sales as well as controlling and administration.

Number	Variable	Label	Influence	Scale
1	$X_{9,p/f}^{SME,9}$	Rating value development	Positive	3 L
2	$X_{1,p/f}^{SME,I5}$	Average SME rating potential	Positive	1-4

Table 18 Variables for H2, SMEs

Testing H2 SMEs

Let $Y_{H2,p/f}^{SME}$ denote the index value for Pre- and Post-Basel II assessments regarding H2. Then $Y_{H2,p/f}^{SME}$ is defined as;

$$Y_{H2,p}^{SME} := Y_{9,p}^{SME,9} + Y_{1,p}^{SME,I5}$$

$$Y_{H2,f}^{SME} := Y_{9,f}^{SME,9} + Y_{1,f}^{SME,I5}$$

The delta between Pre-Basel II and Post-Basel II values is defined as:

$$\Delta Y_{H2}^{SME} := Y_{H2,f}^{SME} - Y_{H2,p}^{SME}$$

Table 19 shows some basic statistics regarding the index values connected to H2 concerning SMEs. It can be observed that the Pre-Basel II values range from 3.193 to 6.467 with mean $\mu_{p\,(H2,SME)} = 5.047$ and variance ${\sigma^2}_{p\,(H2,SME)} = 0.396$. The Post-Basel II values are shifted to the right and range from 4.177 to 8.0 with a mean value of 5.916 and a variance of 0.659.

In terms of SMEs, the variances nearly double from a Pre-Basel II to a Post-Basel II perspective which indicates that SMEs have a far more dispersed picture of the future development compared to their Pre-Basel II assessment.

The delta index values range from -1.43 to 3.52 with a mean value of 0.869 (> 0) and a variance of 0.993.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$H2_{p\,(SME)}$	3.193	6.467	5.047	5.097	0.396	0.629	-0.364
$H2_{f\,(SME)}$	4.177	8.0	5.916	5.932	0.659	0.812	0.157
$H2_{\Delta\,(SME)}$	-1.43	3.527	0.869	0.993	0.993	0.996	0.376

Table 19 Basic statistics of H2 index values Pre- / Post-Basel II (SMEs)

As described in section 5.4.2, it is checked whether the Pre- and the Post-Basel II index values, from an SME perspective, are significantly different in order to test H1. Therefore, in line with section 5.2 regarding normally distributed index values, KS-tests are carried out. In addition further graphical evidence, regarding the assumption of normally distributed index values, provides the analysis of histograms, boxplots and Q-Q plots. Again, like with H1 regarding SMEs, the KS-test provides evidence (see Table 20) that the index values are normally distributed. The KS-test statistics of $D_{p\,(H2,SME)} = 0.1038$, $D_{f\,(H2,SME)} = 0.085$ and $D_{\Delta\,(H2,SME)} = 0.1034$ result in p-values of $p_{p\,(H2,SME)} = 0.4185$, $p_{f\,(H2,SME)} = 0.3607$ and $p_{\Delta\,(H2,SME)} = 0.1207$. All p-values are bigger than 0.05 which means that the assumption that the underlying Pre- and Post-Basel II as well as the delta index values are normally distributed cannot be rejected with a significance level of 5%.

	Kolmogorov-Smirnov (KS) test	
	Test stat D	p-value
$H2_{p\,(SME)}$	0.1038	0.4185
$H2_{f\,(SME)}$	0.085	0.3607
$H2_{\Delta\,(SME)}$	0.1034	0.1207

Table 20 Normality test results for H2 (SMEs)

The descriptive statistics support this evidence too. Figure 57 shows histograms of Pre- and Post-Basel II index values: both histograms show a reasonably good fit to the normal density (see also section 5.4.1). The empirical densities are skewed. Whereas, the Post-Basel II index shows an only a slight positive skewness ($\gamma_{p\,(H2,SME)} = 0.157$, see Table 19), the Pre-Basel II index values shows a bigger negative skewness of $\gamma_{p\,(H2,SME)} = -0.364$.

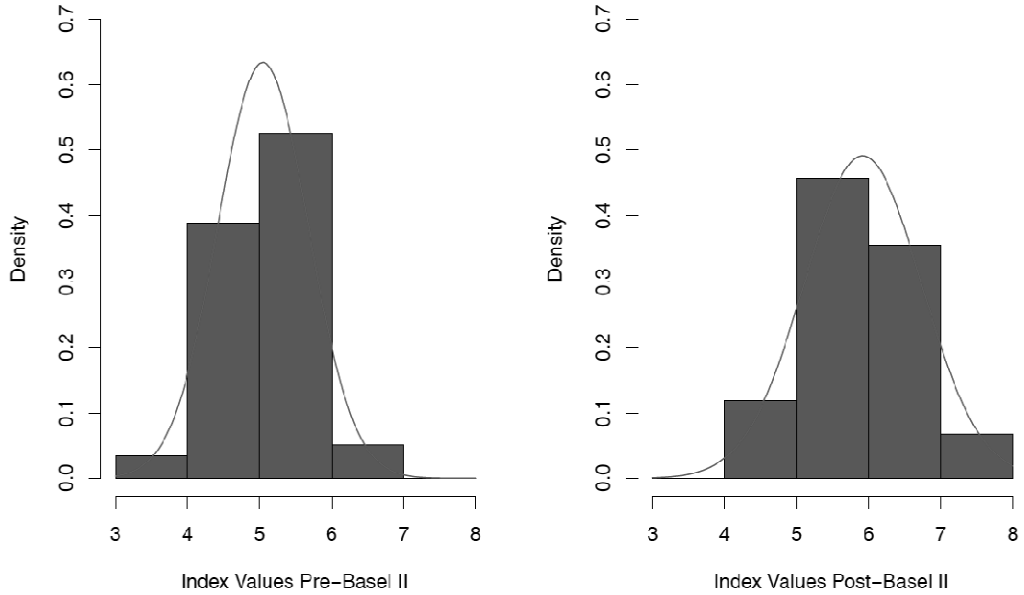

Figure 57 Histograms of Pre- and Post-Basel II index values including normal density plots (red line) regarding H2, SMEs

Figure 58 to Figure 60 illustrate, on the left-hand side, boxplots of the index values calculated for Pre- and Post-Basel II index values as well as the delta of Pre- and Post-Basel II index values. The right-hand side shows Q-Q plots of the respective data. All three Q-Q plots show a reasonably good fit to theoretical normal quantiles which indicates that the assumption of normal distributed index values (Pre-Basel II, Post-Basel II and delta values) is valid. This is in line with the results of the KS-tests provided in Table 20.

Yet, like with the SME plots in section 5.4.1, in the upper and especially lower tail of the Q-Q plots, the fit of the index values with the Q-Q line is

questionable. As this is the case for extreme index values rather than the majority of the values, the overall fit is reasonably good.

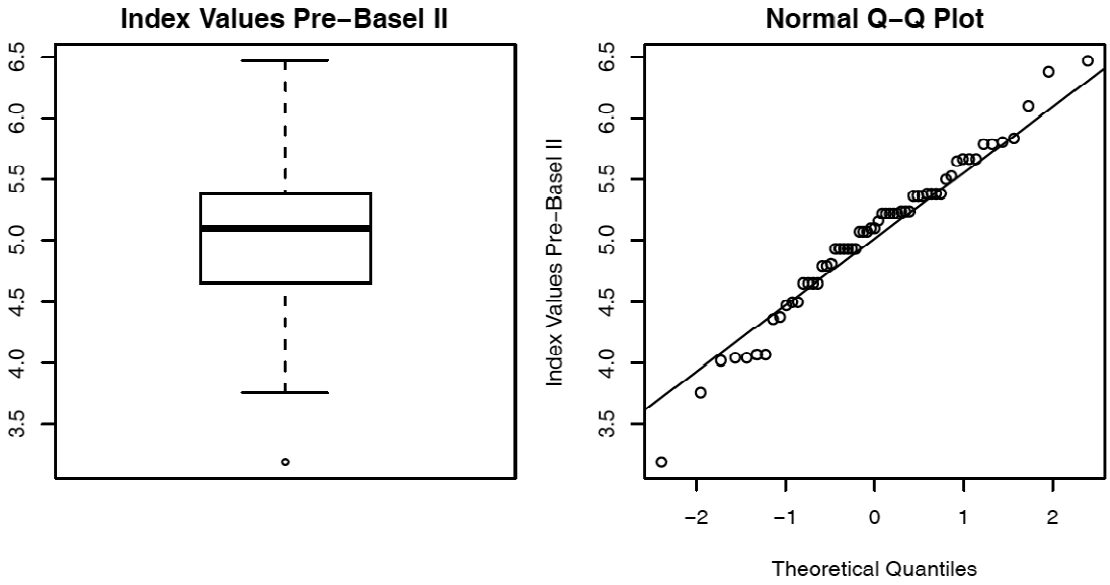

Figure 58 Boxplot and Q-Q plot Pre-Basel II (H2, SMEs)

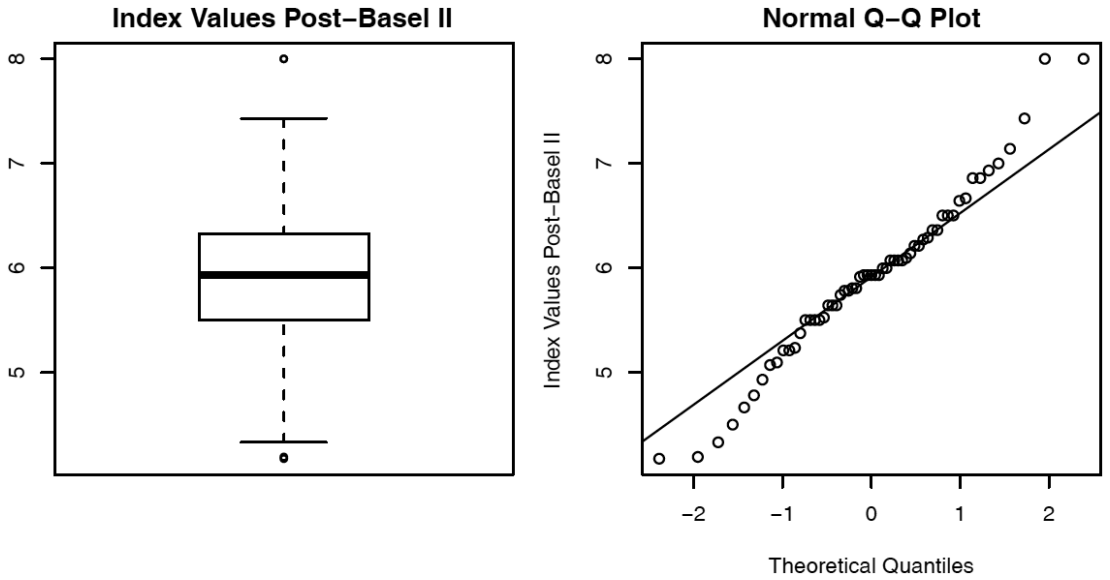

Figure 59 Boxplot and Q-Q plot Post-Basel II (H2, SMEs)

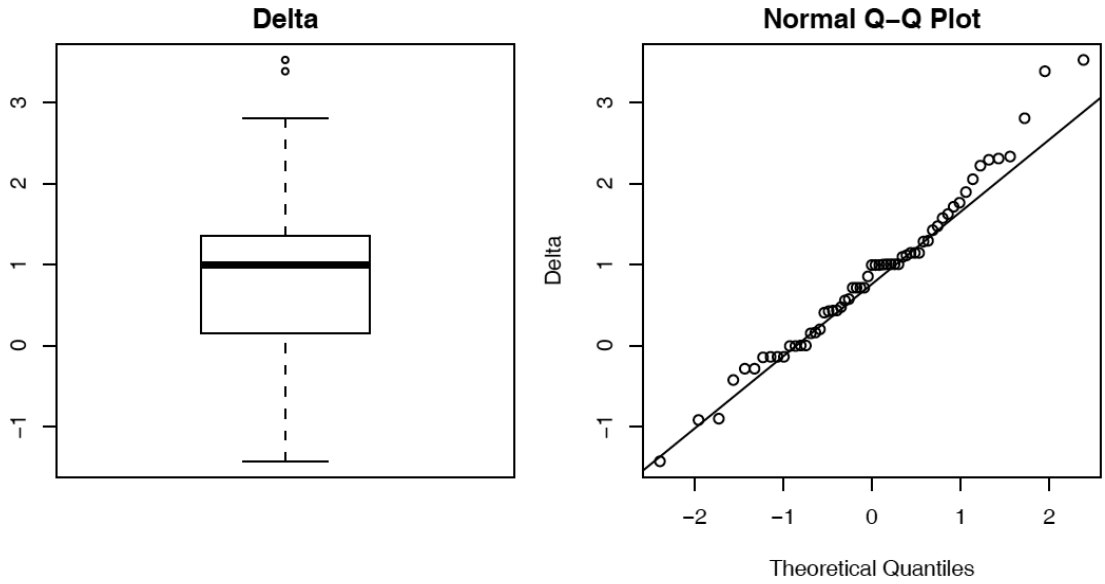

Figure 60 Boxplot and Q-Q plot Delta for H2, SMEs (Pre-Basel II to Post-Basel II)

The outliers in the lower sections of the Pre- and Post-Basel II index values (see boxplots above) comprise two small-enterprises in the retail sector which are relying on supplier credits rather than rating related credits. This is in line with the findings from the background gathering phase. The other one belongs to a medium-sized automotive supplier which experienced subsidised credits with lowered rating demands (see section 5.4.1). The outliers on the upper end of the Post-Basel II and delta index values comprise a medium-sized machinery, and an IT, company which have to ensure a valid rating as no special subsidises are provided.

Under the assumption that the index values are normally distributed (see above) and due to the fact that the variances of the Pre- and Post-Basel II index values differ (heteroscedasticity samples, see Table 19: $\sigma_{p\,(H2,SME)} = 0.396 < \sigma_{\mathrm{f\,(H2,SME)}} = 0.659$), Welch's version of the standard (paired) t-test is applied. Welch's t-test uses the same null-hypothesis and alternative as the paired t-test (see section 4.3.4). This test allows for non equal variances in

Pre- and Post-Basel II samples. Hence, the hypotheses are formulated as follows:

Welch t-test:

$$H_0 : \mu_{p\,(H2,SME)} = \mu_{f\,(H2,SME)} \qquad H_1 : \mu_{p\,(H2,SME)} \neq \mu_{f\,(H2,SME)}$$

The resulting test statistic of $t = -6.7017$ shows that the difference of $\mu_{p\,(H2,SME)}$ and $\mu_{f\,(H2,SME)}$ is statistically significant (see Table 21). The corresponding p-value of $p = 9.274\text{E-}09$ leads to a rejection of H_0 on a significance level of 5% (α =0.05).

	Welch t-test	
	Test stat t	p-value
$H2_{\Delta\,(SME)}$	-6.7017	9.274E-09

Table 21 Welch t-test results for H2 (SMEs)

Again, the KS-test and the descriptive statistics provide evidence that the Pre- and Post-Basel II index values as well as the delta index values are normally distributed. For the same reasons as stated in section 5.4.1, additional to Welch's t-test, a Wilcoxon signed-rank test is carried out.

Wilcoxon signed-rank test:

$$H_0 : \mu_{p\,(H2,SME)} \geq \mu_{f\,(H2,SME)} \qquad H_1 : \mu_{p\,(H2,SME)} < \mu_{f\,(H2,SME)}$$

The results again show that the change of $\mu_{p\,(H2,SME)}$ and $\mu_{f\,(H2,SME)}$ is statistically significant (see Table 22). The test statistic of $W = 651.5$ results in a p-value of $p = 2.308\text{E-}09$. Hence, the null-hypothesis, that the mean of Pre-Basel II index values is greater or equal than the mean of the Post-Basel II index values, is rejected on a significance level of 5% (α =0.05).

	Wilcoxon signed-rank test	
	Test stat W	p-value
$H2_{\Delta\,(SME)}$	651.5	2.308E-09

Table 22 Wilcoxon signed-rank test results for H2 (SMEs)

As H_0 is rejected on a significance level of 5% (see above, paired t-test and Wilcoxon signed-rank test) and the index values are a measurement for the 'rating affinity' (as explained in section 4.2.3 and 4.2.4), this provides evidence regarding H2. Hence, the 'rating affinity' increases (from an SME perspective).

Correlations regarding H2 SMEs

Figure 61 illustrates the correlation of the SME items regarding H2. In the lower left area which is shaded in red, the Pre-Basel II correlations are shown, whereas in the upper right area the Post-Basel II values are illustrated in green.

	Financial rating value	Average SME rating pot.
Financial rating value	**1**	**0.02**
Average SME rating potential	**0.14**	**1**

Figure 61 Estimated correlations for items used in the SME index for H2 using Pre-Basel II data

Analysing the correlation values shows that only weak positive correlations exist.

Multiple linear regression for H2 SME

Like with H1, testing H2 from an SME's perspective using the model above provides evidence from an SME's perspective that 'SMEs can cope best with the effect when they proactively engage in rating and improve the parameters'. Again, the question is how characterising factors of the SMEs, influence this change. In order to achieve this, eleven factors influencing the ability to cope best where chosen which provide the 'best' linear regression model according to the AIC (see Train, 2009:367). The resulting linear regression model consists of eleven covariates and a slightly negative intercept (-0.72). Hence, the ability to cope with the effect of Basel II while engaging proactively in rating and improving the parameters, this could be explained by:

$$\Delta \mathrm{Y}_{\mathrm{H2}}^{\mathrm{SME}} = -0.72 + 2.26 * X_1^{SME,2} - 2.00 * X_4^{SME,2} + 2.00 * X_{1,\Delta}^{SME,3} + 2.77 * X_{2,\Delta}^{SME,3} + 2.50 * X_{3,\Delta}^{SME,3} + 4.37 * X_{4,\Delta}^{SME,3} + 4.31 * X_{5,\Delta}^{SME,3} + 2.08 * X_{6,\Delta}^{SME,3} + 1.28 * X_{7,\Delta}^{SME,3} - 1.59 * X_2^{SME,7} - 1.39 * X_5^{SME,7} .$$

The variable description can be found in the codebook in Table 48 (see Appendix D).

The 'importance of Basel II as regards SME financing' ($X_1^{SME,2}$), as well as all strategic focus elements, have a positive influence on H2. These are: 'strategic focus on financial stability / liquidity' ($X_{1,\Delta}^{SME,3}$), 'strategic focus on increasing profitability' ($X_{2,\Delta}^{SME,3}$), 'strategic focus on enhancing market position' ($X_{3,\Delta}^{SME,3}$), 'strategic focus on quality excellence' ($X_{4,\Delta}^{SME,3}$), 'strategic focus on technology excellence' ($X_{5,\Delta}^{SME,3}$), 'strategic focus on cost excellence' ($X_{6,\Delta}^{SME,3}$) as well as 'strategic focus on increasing company valuation' ($X_{7,\Delta}^{SME,3}$).

It is observable that the 'importance of the crises of state owned banks as regards SME financing' ($X_4^{SME,2}$), 'importance of non-bank financiers as information source' ($X_2^{SME,7}$) and the 'importance of trade press / internet as information source' ($X_5^{SME,7}$), all have a negative influence on H2.

According to the p-values in Table 23, the following values are statistically significant: 'importance of Basel II as regards SME financing' ($X_1^{SME,2}, P = .003$), 'importance of the crises of state owned banks as regards SME financing' ($X_4^{SME,2}, P = .001$), 'strategic focus on increasing profitability' ($X_{2,\Delta}^{SME,3}, P = .005$), 'strategic focus on quality excellence' ($X_{4,\Delta}^{SME,3}\ P = .0003$), and 'strategic focus on technology excellence' ($X_{5,\Delta}^{SME,3}\ P = .005$). The other variables yield p-values between 0.07 and 0.23 which shows that these variables are not significant. However, these variables do add explanatory power to the model, as the overall model fit (according to the AIC) is good enough, so they should be included.

The overall F-statistic (see Gujarati, 2003:219) is 2.37, on 11 and 33 degrees of freedom, which results in a p-value of .027. This means that the F-test, using the null-hypothesis that all variable coefficients are zero, will (Robson, 2002:442) be rejected at a confidence level of 0.05. This means a good model fit to the given data. Furthermore, the multiple R-squared of 0.441 is high. The multiple R-squared measures the variation in the data explained by the model (Gujarati, 2003:81-87). Hence, the model is capable of explaining 44% of the variation inherited in the index data which is a good value in the context of such data.

Coefficients	Parameter Estimate	Std. Error	P-Value
Intercept	-0.72	2.93	0.81
$X_1^{SME,2}$	2.26	1.02	0.03
$X_4^{SME,2}$	-2.00	0.72	0.01
$X_{1,\Delta}^{SME,3}$	2.00	1.10	0.08
$X_{2,\Delta}^{SME,3}$	2.77	0.68	0.05
$X_{3,\Delta}^{SME,3}$	2.50	1.37	0.09
$X_{4,\Delta}^{SME,3}$	4.37	1.41	0.003
$X_{5,\Delta}^{SME,3}$	4.31	2.05	0.05
$X_{6,\Delta}^{SME,3}$	2.08	1.39	0.15
$X_{7,\Delta}^{SME,3}$	1.28	1.04	0.23
$X_2^{SME,7}$	-1.59	0.85	0.07
$X_5^{SME,7}$	-1.39	0.86	0.11

Table 23 Overview of H2 SME regression coefficients

In order to evaluate the fit of the proposed model, it is necessary to take a look at regression diagnostics. Therefore, the (Pearson) residuals of the model are plotted against the fitted values (see Figure 62).

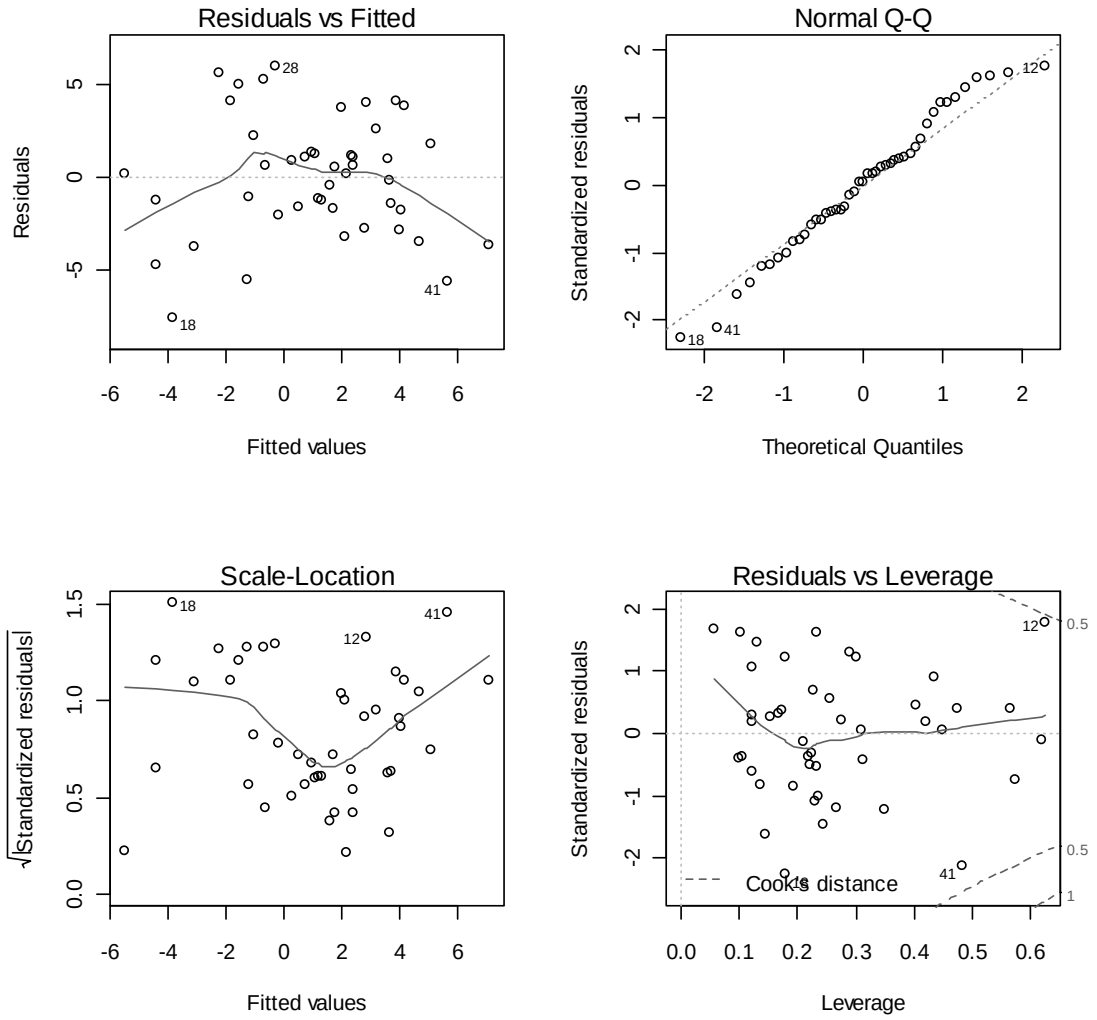

Figure 62 Regression diagnostics for H2 SME

The plot in Figure 62 shows that the residuals, in the tails, are a bit smaller than around the mean of the distribution. The overall pattern does not show any particular misfit to the data. The deviations in the tails are due to the size of the sample used.

A second important part is to check the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Figure 62 provides a Q-Q plot and a Scale-Location plot of the standardised residuals against the fitted values. The residuals in the Q-Q plot show a good fit to normality, in the body of the distribution, and little deviations in the upper

and lower tail. But, the overall fit is still good. Furthermore, the Scale-Location plot indicates that the variance for delta index values of 0 is smaller than for values above and below 0. This is in line with the previous results and shows that the model fit for small delta index values is better than in the tails. But, as mentioned before this might be due to the sample size; the general fit of the model is good which is shown by the p-value of the F-statistic and the R-squared.

Like with H1, the last plot shows the so called Cooks distance of each residual, as a measure of the influential power of an observation to the model. In general, the critical value is chosen to be 1. As the plot does not show any observation exhibiting a Cooks distance of greater than 1 there are no influential observations.

5.6 TESTING HYPOTHESIS H3

H3 (which are hypotheses 2.b and 3) states that non-bank financiers will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies. Like with H1 and H2, this is tested by comparing the means of the SME related index values on a Pre- and Post-Basel II basis. Applying the respective tests, mentioned in section 5.1, provides evidence regarding H3 – from the SMEs' perspective (SME questionnaire sample) as well as from the financiers' perspective (financier questionnaire sample). As described below only non-bank financiers are taken into account, as H3 is related to a non-bank perspective only.

Figure 63 shows the subset manifest (dependent) variables (grouped by latent variables, see comprehensive overview in section 4.2.4), which are used in sections 5.6.1 and 5.6.2, in order to test H3. As described in sections 5.4 and 5.5, the justification of the variables chosen is provided in section 4.3.4 and in Appendix B.

Subset H3: latent / manifest (dependent) variables

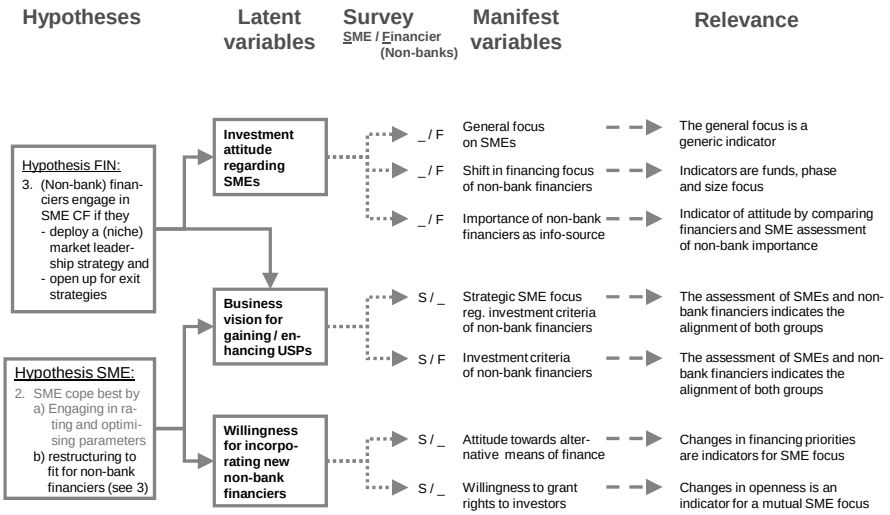

Figure 63 Variables regarding H3

Prior to testing the respective models, alike to H1 and H2, some introductory evaluations were made to provide evidence regarding the affinity of SMEs and non-bank financiers. Firstly, the importance of non-bank financiers, as information sources, is evaluated as it is an indicator regarding the perception of non-bank financiers.

Importance of non-bank financiers as an information source

Comparing the assessment of SMEs, banks and non-banks shows that, on a scale from 1 = 'no importance' to 4 = '(very) high importance', the respective groups regard the importance of non-bank financiers as an information source as follows: SMEs ($X_2^{SME,7}$, see codebook in Table 48) as lower than medium ($\mu_{Non-bank\ info\ source\ (SME)} = 2.16$), banks as higher than medium ($\mu_{Non-bank\ info\ source\ (Bank)} = 2.64$), and non-bank financiers ($X_6^{FIN,3}$, see codebook in Table 49) as high ($\mu_{Non-bank\ info\ source\ (Non-bank)} = 3.34$). The finding that non-bank financiers estimate their own role to be much stronger

than conceded by SMEs indicates that non-bank financiers lay a strong focus on SME financing, as they have the perception that they already have an influential role on SMEs. This is acknowledged by the qualitative analysis in section 6. Figure 64 shows the respective histograms.

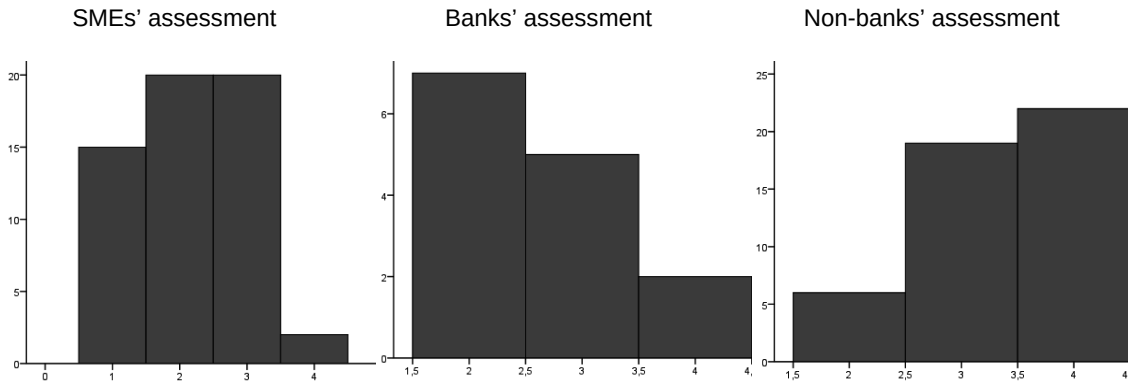

Figure 64 Histograms regarding the importance of non-banks information source in the view of SMEs, banks and non-bank financiers (from left to right)

The Kruskal-Wallis test tests if the samples belong to the same distribution (H_0) by using the same cases of various variables. For every item of every case the values are ranked. In a next step, the medium average rank of each variable is evaluated. The significance value regarding H_0 is thus calculated (Brosius, 2008). The null hypothesis (H_0) of the Kruskal-Wallis test is that the mean importance of non-bank financiers, as a source of information, is equal for all three groups of companies (SMEs, non-bank, banks). The alternative is that they differ from each other (H_1).

$$H_0 : \mu_{Non-bank\ info\ source\ (SME)} = \mu_{Non-bank\ info\ source\ (Bank)} = \mu_{Non-bank\ info\ source\ (Non-bank\ Fin.)}$$

$$H_1 : not\ H_0$$

Applying the Kruskal-Wallis test shows that the difference is statistically significant (see Table 24); the test statistic of $\chi^2 = 39.089$ results in a p-value of $p = 0.0$. Hence, the null-hypothesis, that the mean values regarding the importance of non-bank financiers as an information source from an SME,

bank and non-bank financiers' perspective are equal, is rejected on a significance level of 5% (α =0.05).

	Kruskal-Wallis test		*Mean ranks*		
	Test stat χ^2	p-value	SME	Bank	Non-bank
$PE\ Info-source$	39.089	0.0	41.77	56.25	81.97

Table 24 Kruskal-Wallis test results non-bank financiers as information source

The top-three priorities, in terms of future importance of non-bank financiers' investment criteria, from an SME perspective are (the following variable labels refer to Table 48 and Table 49 in the codebook in Appendix D): leading edge technology ($\mu_{Technology\ (SME)=}3.53$, see $X_{4,f}^{SME,5}$), position ($\mu_{Position\ (SME)=}3.47$, see $X_{3,f}^{SME,5}$) and growth ($\mu_{Growth\ (SME)=}3.47$, see $X_{8,f}^{SME,5}$). Non-bank financiers have the same top-three priorities in a slightly different order: position ($\mu_{Position\ (FIN)=}3.85$, see $X_{2,p/f}^{FIN,6}$), growth ($\mu_{Growth\ (SME)=}3.85$, see $X_{7,p/f}^{FIN,6}$) and leading edge technology ($\mu_{Technology\ (FIN)=}3.7$, see $X_{3,p/f}^{FIN,6}$) in the third position. Figure 65 shows the Post-Basel II assessments of SMEs (left, $X_{2,f}^{SME,5}$ to $X_{9,f}^{SME,5}$) and non-bank financiers (right, $X_{1,p/f}^{FIN,6}$ to $X_{8,p/f}^{FIN,6}$) regarding non-bank investment criteria (means in descending order).

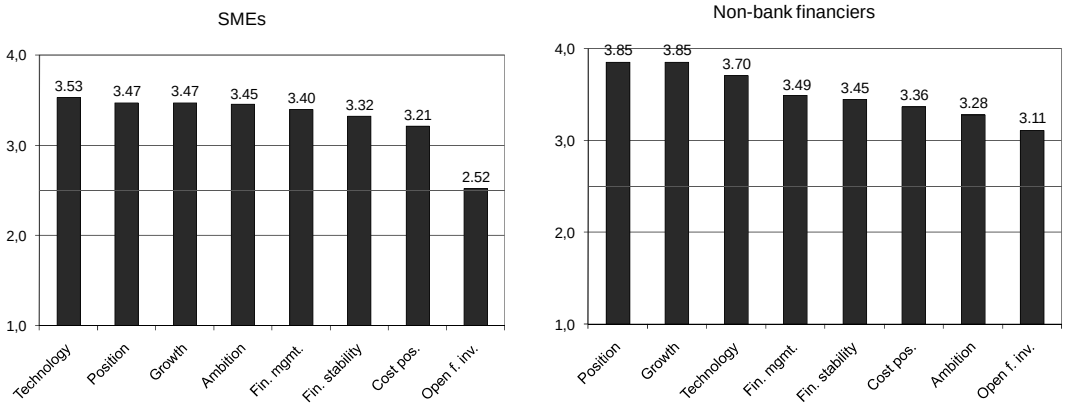

Figure 65 Average importance of non-bank investment criteria

5.6.1 H3: Model testing from an SME's perspective

As stated in section 5.1, H3 represents the hypotheses 2.b and 3. H3 is tested from an SME perspective by using the data returned from the SME questionnaires. The index measuring the extent of the 'affinity to non-bank financiers' includes 8 variables (see Table 25). As discussed in section 5.4.1, the justification of the variables selected can be found in Appendix B. The respective SME codebook regarding the SME variables can be found in Table 48 (within Appendix D). Again, '4 L' comprise a four item Likert scale, '1-4' represent the transformed variable with values between 1 and 4. The average importance of non-credit financing is defined as the average of the importance of non-credit forms of finance ($X_{5,p/f}^{SME,4}$ to $X_{12,p/f}^{SME,4}$), namely supplier credit, leasing, factoring, mezzanine, securities (ABS), private equity, strategic investor and IPO.

Number	Variable	Label	Influence	Scale
1	$X_{3,p/f}^{SME,5}$	Good market position	Positive	4 L
2	$X_{4,p/f}^{SME,5}$	Leading edge products / technology	Positive	4 L
3	$X_{8,p/f}^{SME,5}$	Future growth options	Positive	4 L
4	$X_{9,p/f}^{SME,5}$	Willingness of shareholders to in-corporate new non-bank financiers	Positive	4 L
5	$X_{3,p/f}^{SME,8}$	Pot. of company Research & Dev.	Positive	4 L
6	$X_{4,p/f}^{SME,8}$	Pot. of company Product. & Logist.	Positive	4 L
7	$X_{5,p/f}^{SME,8}$	Pot. of company Marketing & Sales	Positive	4 L
8	$X_{1,p/f}^{SME,I3}$	Average Imp. of Non-Credit Fin.	Positive	1-4

Table 25 Variables for H3, SMEs

Testing H3 SMEs

Let $Y_{H3,p/f}^{SME}$ denote the index value for Pre- and Post-Basel II assessments regarding H3.

Then $Y_{H3,p/f}^{SME}$ is defined as:

$$Y_{H3,p}^{SME} := Y_{3,p}^{SME,5} + Y_{4,p}^{SME,5} + Y_{8,p}^{SME,5} + Y_{9,p}^{SME,5} + Y_{3,p}^{SME,8} + Y_{4,p}^{SME,8} + Y_{5,p}^{SME,8} + Y_{1,p}^{SME,I3}$$

$$Y_{H3,f}^{SME} := Y_{3,f}^{SME,5} + Y_{4,f}^{SME,5} + Y_{8,f}^{SME,5} + Y_{9,f}^{SME,5} + Y_{3,f}^{SME,8} + Y_{4,f}^{SME,8} + Y_{5,f}^{SME,8} + Y_{1,f}^{SME,I3}$$

The delta between Pre-Basel II and Post-Basel II values is defined as:

$$\Delta Y_{H3}^{SME} := Y_{H3,f}^{SME} - Y_{H3,p}^{SME}$$

Table 26 provides some basic statistics of the index values regarding H1 in terms of SMEs: the Pre-Basel II values range from 13.5 to 27.61 with mean $\mu_{p\,(H3,SME)} = 21.506$ and variance $\sigma^2{}_{p\,(H3,SME)} = 10.137$. The Post-Basel II values are again shifted to the right and range from 13.63 to 30.11 with a mean value of 23.41 and a variance of 12.433. The delta value ranges from -5.0 to 9.6, with a mean value of 1.904 (again > 0) and a variance of 8.636.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$H3_{p\,(SME)}$	13.5	27.61	21.506	21.68	10.137	3.184	-0.284
$H3_{f\,(SME)}$	13.63	30.11	23.41	23.327	12.433	3.526	-0.424
$H3_{\Delta\,(SME)}$	-5.0	9.6	1.904	1.609	8.636	2.939	0.545

Table 26 Basic statistics of H3 index values Pre- / Post-Basel II (SMEs)

As described in section 5.1, it is checked from an SME perspective whether the Pre-Basel II and the Post-Basel II index values are significantly different in order to test H3. As illustrated above (Table 26), the variances of the Pre- and Post-Basel II index values ($\sigma^2{}_{p\,(H3,SME)}$ = 10.137, $\sigma^2{}_{f\,(H3,SME)}$ = 12.433) are similar.

As explained in section 5.4.1, a paired t-test is used to check whether the means of Pre-Basel II index values ($\mu_{p\,(H3,SME)}$) and the Post-Basel II index values ($\mu_{f\,(H3,SME)}$) are equal. The null hypothesis and its alternative are stated below:

Paired t-test:

$$H_0 : \mu_{p\,(H3,SME)} = \mu_{f\,(H3,SME)} \qquad H_1 : \mu_{p\,(H3,SME)} \neq \mu_{f\,(H3,SME)}$$

Applying the paired t-test shows that the difference of $\mu_{p\,(H3,SME)}$ and $\mu_{f\,(H3,SME)}$ is statistically significant (see Table 27). The test statistic of $t = 4.9759$ results in a p-value of $p = 6.131E06$. Hence, H_0 can be rejected on a significance level of 5% (α =0.05).

	Paired t-test	
	Test stat t	p-value
$H3_{\Delta\,(SME)}$	4.9759	6.131E 06

Table 27 Paired t-test results for H3 (SMEs)

To verify the assumption of normally distributed index values, KS-tests and graphical tools, such as histograms, box-plots and Q-Q plots, are provided. As has been the case regarding SME models for H1 and H2, the KS-test does not reject the null hypothesis of normally distributed index values and delta index values (see Table 28).

	Kolmogorov-Smirnov (KS) test	
	Test stat D	p-value
$H3_{p\ (SME)}$	0.0692	0.6877
$H3_{f\ (SME)}$	0.0608	0.8494
$H3_{\Delta\ (SME)}$	0.1123	0.06165

Table 28 Normality test results for H3 (SMEs)

Again, the descriptive statistics provide supporting evidence: Figure 66 provides histograms of Pre- and Post-Basel II index values. Both histograms show a reasonably good fit to the normal density.

The empirical densities (see Table 26) show a (slight) negative skewness ($\gamma = -0.284$ for the Post-Basel II index values and $\gamma = -0.424$ regarding the Pre-Basel II index values.

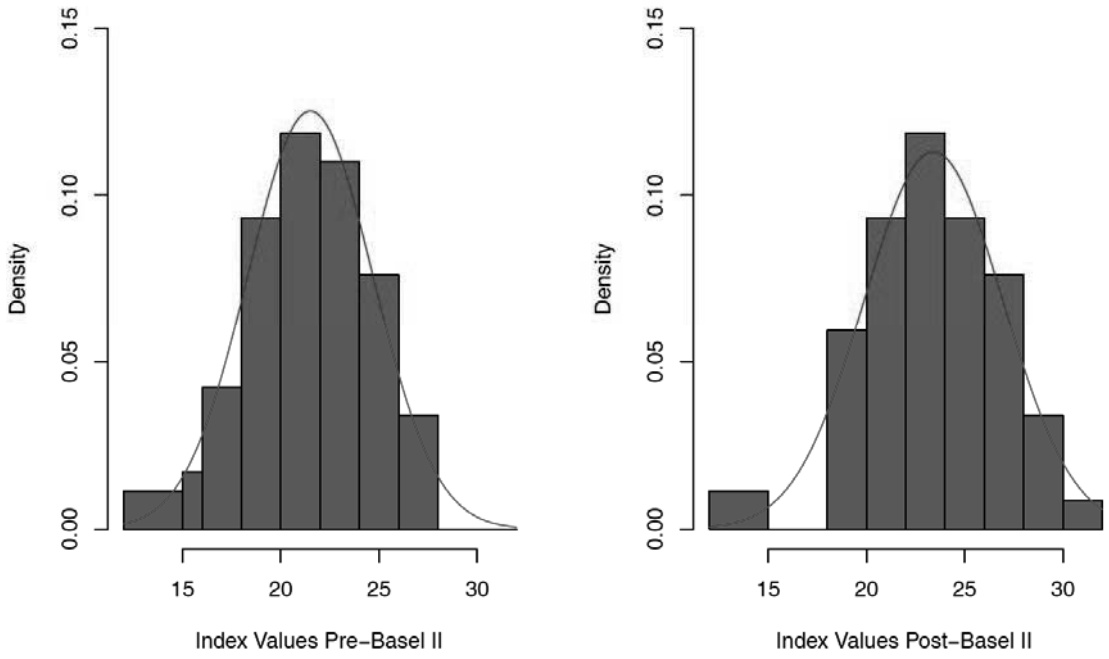

Figure 66 Histograms of Pre- and Post-Basel II index values including normal density plots (red line) regarding H3, SMEs

On the left-hand side of Figure 67 to Figure 69, boxplots of the index values calculated for Pre-Basel II and Post- Basel II index values as well as the delta of the Pre- and Post-Basel II index values are shown. On the right-hand side, Q-Q plots of the respective data are displayed. All three Q-Q plots show a reasonably good fit of the index values with theoretical normal quantiles which indicates that the assumption of normally distributed index values (Pre-Basel II, Post-Basel II and delta values) is valid.

Whereas, in the middle range the fit with the Q-Q line is good, in the upper (delta values) and lower tails (Pre- and Post-Basel II values) of the Q-Q plots, the fit of the index values with the Q-Q line is questionable. However, as these values are connected (see section 5.4.1, 5.4.2 and 5.5.1) to more extreme index values, and the majority of these values show again good fit. The overall fit is reasonably good.

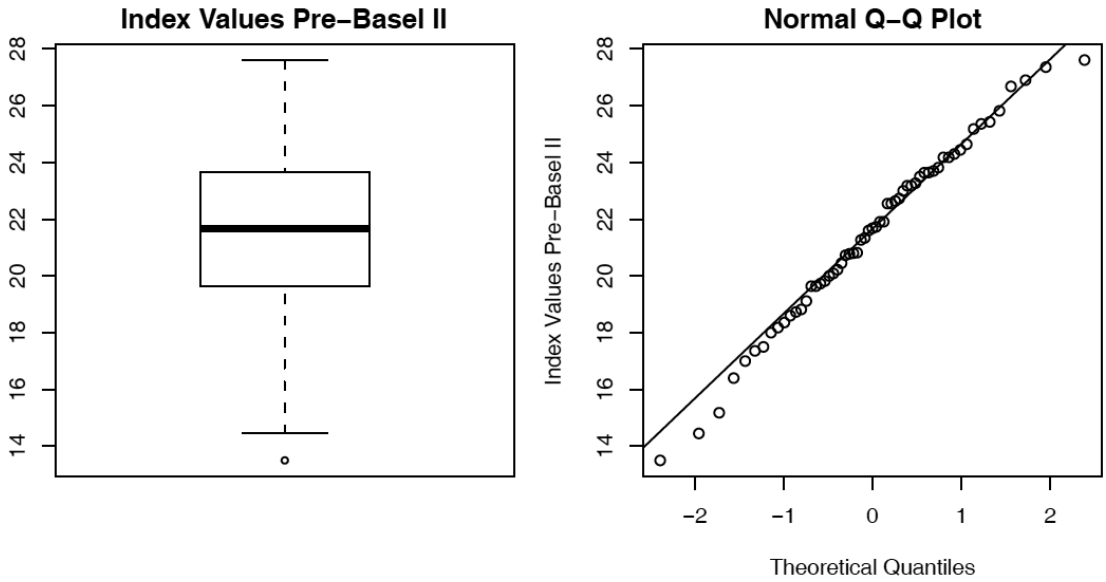

Figure 67 Boxplot and Q-Q plot Pre-Basel II (H3, SMEs)

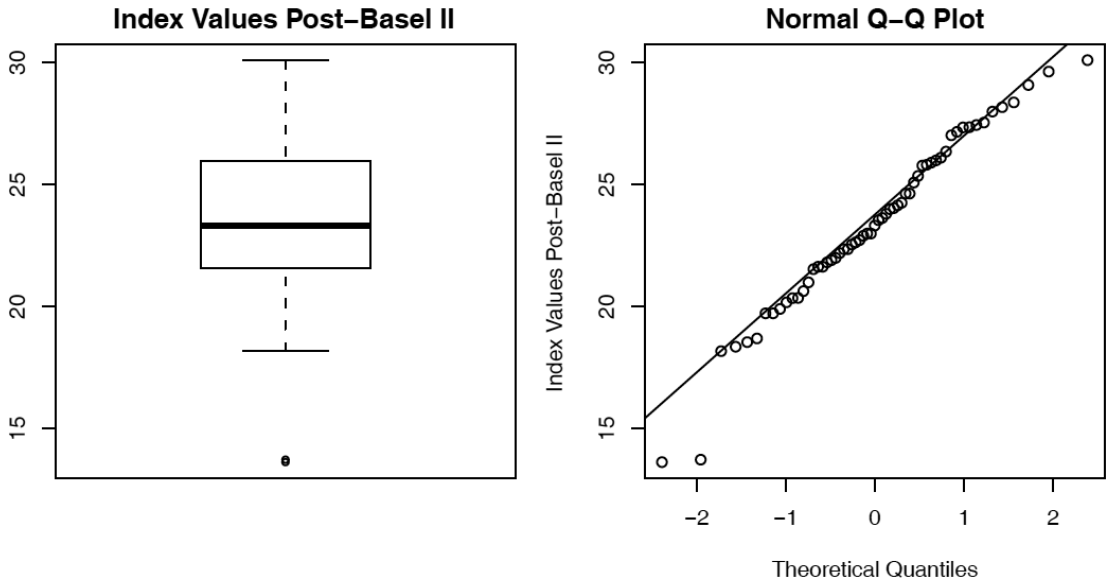

Figure 68 Boxplot and Q-Q plot Post-Basel II (H3, SMEs)

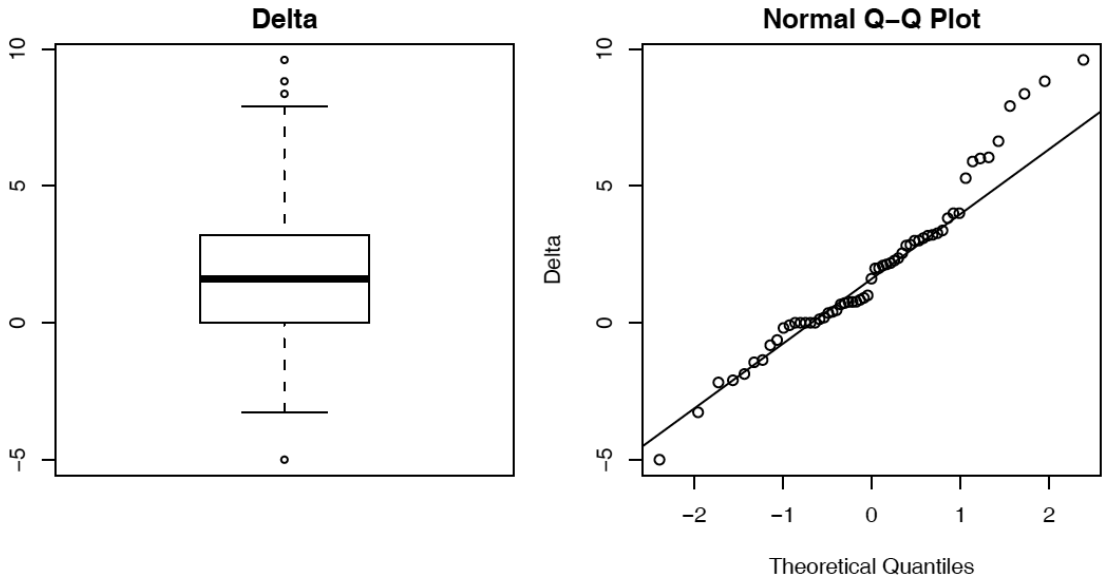

Figure 69 Boxplot and Q-Q plot delta for H3, SMEs (Pre-Basel II to Post-Basel II)

The two outliers (one is identical in the Pre- and Post-Basel II boxplot), at the lower end of the scale of the Pre- and Post-Basel II index values, belong to a medium-sized construction company and a small energy trade company which benefit from subsidies, as already described in section 5.4.1. The outlier at the lower end of the delta index values comprises a medium-sized company. According to financiers interviewed, chemical companies need a

high economy-of-scale in order to become attractive to non-bank financiers. The outliers on the upper end of the scale belong to micro and small enterprises in the IT and general industry, operating on a low profitability which fosters an openness for non-bank financiers (see section 3.3) as stated by Schäfer *et al* (2004 and 2007) as well as Nitschke and Kuper (2007).

As described in section 5.2 and 5.5, the KS-test as well as the descriptive statistics (histograms, box-plots and Q-Q plots) provide evidence that the Pre- and Post-Basel II index values and the delta index values are normality distributed. However, for the analogues reasons (see H1 SME and H2 SME in section 5.4.1 and 5.5.1) a Wilcoxon signed-rank test is carried out.

Wilcoxon signed-rank test:

$$H_0 : \mu_{p\,(H3,SME)} \geq \mu_{f\,(H3,SME)} \qquad H_1 : \mu_{p\,(H3,SME)} < \mu_{f\,(H3,SME)}$$

Applying the Wilcoxon signed-rank test shows that the change of $\mu_{p\,(H3,SME)}$ and $\mu_{f\,(H3,SME)}$ is statistically significant (see Table 29). Hence, the null-hypothesis, that the mean of Pre-Basel II index values is greater or equal than the mean of the Post-Basel II index values, is rejected on a significance level of 5% (α =0.05).

	Wilcoxon signed-rank test	
	Test stat W	p-value
$H3_{\Delta\,(SME)}$	1,192.0	0.003181

Table 29 Wilcoxon signed-rank test results for H3 (SMEs)

As H_0 is rejected, on a significance level of 5% regarding the paired t-test as well as the Wilcoxon signed-rank test, and the index values are a measurement for the 'affinity to non-bank financiers' (as explained in section 4.2.3 and 4.2.4), this provides evidence regarding H3 from an SME perspective. Hence, the 'affinity to non-bank financiers' from an SME perspective is enhanced.

Correlations regarding H3 SMEs

Figure 70 illustrates the correlation of the SME items regarding H3. The lower left area contains the Pre-Basel II correlations (which are shaded in red) and the (green) upper right area displays the Post-Basel II correlation values.

	Good market position	Leading edge prod. / tech.	Future growth options	Willingness of to inc. new inv.	Pot. of comp. R&D	Pot. of comp. Prod. & Log.	Pot. of comp. Mkt. & Sales	Average Imp. of Non-Credit Fin.
Good market position	1	0.72	0.37	0.38	0.14	-0.10	0.07	0.30
Leading edge prod. / tech.	0.68	1	0.34	0.30	-0.02	-0.09	0.09	0.25
Future growth options	0.45	0.45	1	0.40	0.03	-0.03	-0.08	0.20
Willingness of to inc. new inv.	0.41	0.33	0.40	1	0.10	0.01	0.29	0.30
Pot. of company R&D	0.07	-0.10	-0.01	0.09	1	0.36	0.33	0.05
Pot. of company Product. & Log.	-0.05	0.01	-0.04	-0.24	0.31	1	0.60	0.06
Pot. of company Mkt. & Sales	-0.09	-0.10	0.09	-0.14	0.22	0.55	1	0.16
Average Imp. of Non-Credit Fin.	0.35	0.25	0.29	0.30	0.08	0.11	0.27	1

Figure 70 Estimated correlations for items used in the SME index for H3 using Pre-Basel II data

As discussed in section 5.4.1, the following analysis focuses on stronger correlations only. From a Pre-Basel II perspective, a 'good market position' is strongly positively correlated to 'leading edge products / technology', 'future growth options' and the 'willingness to incorporate new non-bank financiers'. This is in line with the literature review in section 3 (see Schäfer *et al*, 2004 or Schäfer *et al*, 2007, for example) as a good market position is, on the one hand, regarded as the result and, on the other hand, as the basis of a technological edge and extended growth ($\rho_p = 0.68$ and $\rho_f = 0{,}45$), which is aligned with a non-bank financiers' focus. This correlation of market position is acknowledged by the interviewed SMEs, banks and non-bank financiers (see qualitative analysis in section 6).

As stated by a major German and a European private equity firm (see sections 6.2 and 6.7, specifically), non-bank financiers are looking for a 'good market position' – especially in the Post-Basel II era. Therefore, the 'willingness to incorporate new financiers' shows the strongest correlation ($\rho_p = 0.68$) for Pre-Basel II and even for Post-Basel II ($\rho_f = 0.72$). Several authors, like Ahrweiler *et al* (2007) or Dietsch and Petey (2004), as well as non-bank financiers (see qualitative research in section 6) believe that, with Basel II, credit financing will become more difficult for SMEs. In addition, the interviewees from the banking side argue (like a private bank and a savings bank, see section 6) that the 'good SMEs' will be in a better financing position which enables non-bank financiers to leverage their capital investments.

Another strong correlation can be found between the potential of companies regarding production and logistics, as well as marketing and sales from a Pre- and Post-Basel II perspective (ρ_p = 0.55 and ρ_f = 0.60). The argument is that in order to be successful in the market you need to have a valid integrated supply chain which includes good 'push and pull marketing' for selling products which can be delivered by an optimised just-in-time production and supply-chain, as stated in a study by Geiger *et al* (2009), across several European countries.

Multiple linear regression for H3 SME

Testing H3, from an SME's perspective, using the model above provides evidence that SMEs can cope best with the effect of Basel II if they deploy a niche market leadership strategy. Again, the question arises concerning how the characterising factors of the SMEs, influence this change. In order to achieve this, a variety of possible factors, influencing the importance of niche market leadership focus are taken into account, of which six are extracted which provide the 'best' linear regression model according to the AIC (see Train, 2009:367). The resulting linear regression model consists of six covariates and a slightly negative intercept (-0.59). Hence, the change of the importance of the focus, on niche market leadership of an SME, could be explained by:

$$\Delta \mathrm{Y}_{\mathrm{H3}}^{\mathrm{SME}} = -0.59 + 0.82 * X_1^{SME,2} - 1.05 * X_4^{SME,2} + 1.46 * X_{1,\Delta}^{SME,3} + 2.02 * X_{3,\Delta}^{SME,3} + 2.14 * X_{4,\Delta}^{SME,3} + 0.69 * X_3^{SME,7}.$$

The variable description can be found in the codebook in Table 48 (see Appendix D). By looking at the regression coefficients it is observable that the extent of 'influence of Basel II on corporate financing' ($X_1^{SME,2}$) has a positive influence regarding the importance in terms of focus on niche market leadership. The same applies to the changes in the 'company strategy focus on financial stability' ($X_{1,\Delta}^{SME,3}$), the changes in the 'company strategy focus on enhancing market position' ($X_{3,\Delta}^{SME,3}$), the changes in the 'company strategy focus on quality excellence' ($X_{4,\Delta}^{SME,3}$), as well as the 'importance of chartered accountants as information source' ($X_3^{SME,7}$). On the other hand, the 'influence of the crisis of stated owned banks on corporate financing' ($X_4^{SME,2}$) has a negative influence.

According to the p-values in Table 30, the delta values: 'importance of the crisis of state owned SME banks on corporate financing' ($X_4^{SME,2}, P = .01$),

'company strategy focus on financial stability' ($X_{1,\Delta}^{SME,3}, P = .03$), 'company strategy focus on enhancing market position' ($X_{3,\Delta}^{SME,3}, P = .01$) and the delta values of 'company strategy focus on quality excellence' ($X_{4,\Delta}^{SME,3}, P = .002$), all yield a statistically significant influence on H3. The 'importance of Basel II on corporate financing' ($X_{1}^{SME,2}, P = .13$) as well as the 'importance of chartered accountants as information source' ($X_{3}^{SME,7}, P = .11$) yield p-values above 0.05 and are thus not statistically significant. However, these variables do add explanatory power to the model as the overall model fit (according to the AIC) is good enough, so they should be included.

The overall F-statistic (see Gujarati, 2003:219) is 4.64, on 6 and 38 degrees of freedom, which results in a p-value of 0.0013. This means that the F-test, using the null-hypothesis that all variable coefficients are zero, will (Robson, 2002:442) be rejected on a confidence level of 0.0013. Furthermore, the multiple R-squared of 0.4229 is high. The multiple R-squared measures the variation in the data explained by the model (Gujarati, 2003:81-87). Hence, the model is capable of explaining about 42% of the variation inherited in the index data which is a good value in the context of such data.

Coefficients	Parameter Estimate	Std. Error	P-Value
Intercept	-0.59	1.75	0.74
$X_{1}^{SME,2}$	0.82	0.52	0.13
$X_{4}^{SME,2}$	-1.05	0.40	0.01
$X_{1,\Delta}^{SME,3}$	1.46	0.63	0.03
$X_{3,\Delta}^{SME,3}$	2.01	0.74	0.01
$X_{4,\Delta}^{SME,3}$	2.14	0.65	0.002
$X_{3}^{SME,7}$	0.69	0.42	0.11

Table 30 Overview of H3 SME regression coefficients

Regression diagnostics

In order to evaluate the fit of the proposed model, it is necessary to take a look at regression diagnostics. Therefore, the (Pearson) residuals of the model are plotted against the fitted values (see Figure 71).

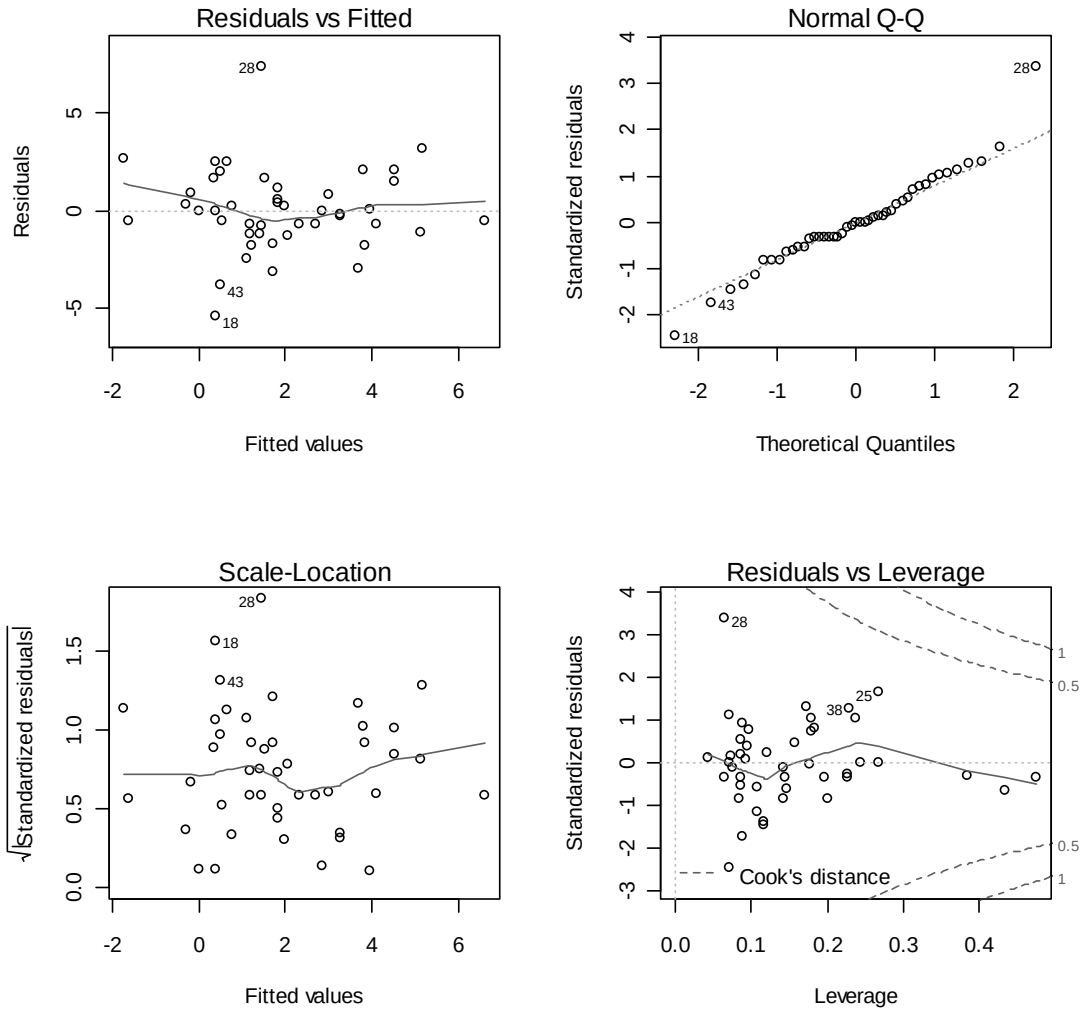

Figure 71 Regression diagnostics for H3 SME

The plot of the (Pearson) residuals, against the fitted values in Figure 71, show no particular pattern or functional dependency; hence, based on the residuals there is no evidence to challenge the fit of the model to the data.

The second important part consists of checking the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Figure 71 provides a Q-Q plot (upper left) and a Scale-Location plot (lower right) of the standardised residuals against the fitted values. The Q-Q plot shows mainly a good fit to normal distribution expected from some outliers in the upper and lower tail of the distribution. But, the overall fit is very good. Furthermore, the Scale-Location plot does not indicate that the variance of the standardised residuals is changing over the range of the fitted values. Again, some outliers yield higher standardised residual values, but they are not influential – this can be observed by looking at the lower right plot. This is in line with the previous results and shows that the model fit is, in general, good.

The last plot shows the so called Cooks distance of each residual, as a measure of the influential power of an observation to the model. In general the critical value is chosen to be 1. As the plot does not show any observation exhibiting a Cooks distance of greater than one, there are no influential observations.

5.6.2 H3: Model testing from a financier's perspective

Alike with SMEs, H3 is tested from a non-bank financier's perspective by using the data returned from the financier questionnaires. Returns from non-banks are used only, as H3 is dedicated to the non-bank perspective assessing the affinity of non-bank financiers towards SMEs. The index includes eight variables (see Table 31). As discussed in section 5.4.1, the selection of these variables was derived from the author's background gathering phase (see section 4.3) and the literature review (see section 3). Again, a detailed justification can be found in Appendix B. The respective financier codebook regarding the financier variables can be found in Table 49

within Appendix D. Again, '4 L' comprise a four item Likert scale, '1-4' represent the transformed variable with values between '1-4' as follows:

Variable 1 and 2 are clustered according to the SME definition of the European Commission, as described in section 2.5.1. Micro enterprises are coded with 1, small enterprises with 2, medium enterprises with 3 and bigger enterprises with 4. In terms of 'number of sources provided' (variable 6) and 'number of phases supported' (variable 7), the financiers could select one to seven variables. Therefore, as discussed in section 5.4.2, the values were transformed to a scale from 1 to 4. The same applies to the 15 sectors selected (variable 8).

Number	Variable	Label	Influence	Scale
1	$X_{38,p/f}^{FIN,2}$	Sweetspot revenue minimum	Positive	1-4
2	$X_{39,p/f}^{FIN,2}$	Sweetspot revenue maximum	Positive	1-4
3	$X_{2,p/f}^{FIN,6}$	Good market position	Positive	4 L
4	$X_{3,p/f}^{FIN,6}$	Leading edge products / technology	Positive	4 L
5	$X_{7,p/f}^{FIN,6}$	Future growth options	Positive	4 L
6	$X_{1,p/f}^{FIN,I1}$	Number of sources provided	Positive	1-4
7	$X_{1,p/f}^{FIN,I2}$	Number of phases supported	Positive	1-4
8	$X_{1,p/f}^{FIN,I3}$	Number of sectors supported	Positive	1-4

Table 31 Variables for H3 financiers

Testing H3 financiers

Let $Y_{H3,p/f}^{FIN}$ denote the index value for Pre- and Post-Basel II assessments regarding H3.

Then $Y_{H3,p/f}^{FIN}$ is defined as:

$$Y_{H3,p}^{FIN} := Y_{38,p}^{FIN,2} + Y_{39,p}^{FIN,2} + Y_{2,p}^{FIN,6} + Y_{3,p}^{FIN,6} + Y_{7,p}^{FIN,6} + Y_{1,p}^{FIN,I1} + Y_{1,p}^{FIN,I2} + Y_{1,p}^{FIN,I3}$$

$$Y_{H3,f}^{FIN} := Y_{38,f}^{FIN,2} + Y_{39,f}^{FIN,2} + Y_{2,f}^{FIN,6} + Y_{3,f}^{FIN,6} + Y_{7,f}^{FIN,6} + Y_{1,f}^{FIN,I1} + Y_{1,f}^{FIN,I2} + Y_{1,f}^{FIN,I3}$$

The delta between Pre-Basel II and Post-Basel II values is defined as:

$$\Delta Y_{H3}^{FIN} := Y_{H3,f}^{FIN} - Y_{H3,p}^{FIN}$$

Table 32 provides some basic statistics of the index values regarding H3, in relation to financiers: it can be observed that the Pre-Basel II values range from 15.076 to 29.462, with mean $\mu_{p\,(H3,FIN)} = 21.536$ and variance ${\sigma^2}_{p\,(H3,FIN)} = 7.941$. The Post-Basel II values are shifted to the right and range from 17.076 to 29.971 with a mean value of 22.164 and a variance of 7.428. This results in delta index values which range from -1.533 to 4.81 and have a mean value of 0.628 and a variance of 1.396.

	Min	Max	Mean (μ)	Median	Variance (σ^2)	Stdev (σ)	Skewness (γ)
$H3_{p\,(FIN)}$	15.076	29.462	21.536	21.610	7.941	2.818	0.108
$H3_{f\,(FIN)}$	17.076	29.971	22.164	21.790	7.428	2.726	0.690
$H3_{\Delta\,(FIN)}$	-1.533	4.81	0.628	0.508	1.396	1.182	1.039

Table 32 Basic statistics of H3 index values Pre- / Post-Basel II (financiers)

Analogous to the model in section 5.2.2, regarding the financiers' H1 indexes, homoscedasticity can be assumed as the variances of the Pre- and Post-Basel II index (${\sigma^2}_{p\,(H3,FIN)} = 7.941$, ${\sigma^2}_{f\,(H3,FIN)} = 7.428$) values are similar.

Therefore, the paired t-test is applied again, in order to test if the means of Pre-Basel II index values ($\mu_{p\,(H3,FIN)}$) and the Post-Basel II index values ($\mu_{f\,(H3,FIN)}$) are equal (H_0) or not (H_1).

Paired t-test:

$$H_0 : \mu_{p\,(H3,FIN)} = \mu_{f\,(H3,FIN)} \qquad H_1 : \mu_{p\,(H3,FIN)} \neq \mu_{f\,(H3,FIN)}$$

Applying the paired t-test shows that the difference of $\mu_{p\,(H3,FIN)}$ and $\mu_{f\,(H3,FIN)}$ is statistically significant (see Table 33). The test statistic of $t = -6.2353$ results in a p-value of $p = 1.014\text{E-}07$. Hence, the null-hypothesis, that the means of Pre- and Post-Basel II index values are equal, is rejected on a significance level of 5% (α =0.05).

	Paired t-test	
	Test stat t	p-value
$H3_{\Delta\,(FIN)}$	-6.2353	1.014E-07

Table 33 Paired t-test results for H3 (financiers)

As in the previous sections, the index values are checked for normality as this is needed for assessing the validity of the paired t-test. Figure 72 shows histograms of Pre- and Post-Basel II index values. Yet, the Pre-Basel II histograms provide not a very good fit to the normal density (red line). Whereas, the Post-Basel II index (see Table 32) shows only a very slight positive skewness ($\gamma = 0.078$), the Pre-Basel II index values show a greater negative skewness ($\gamma = -0.485$).

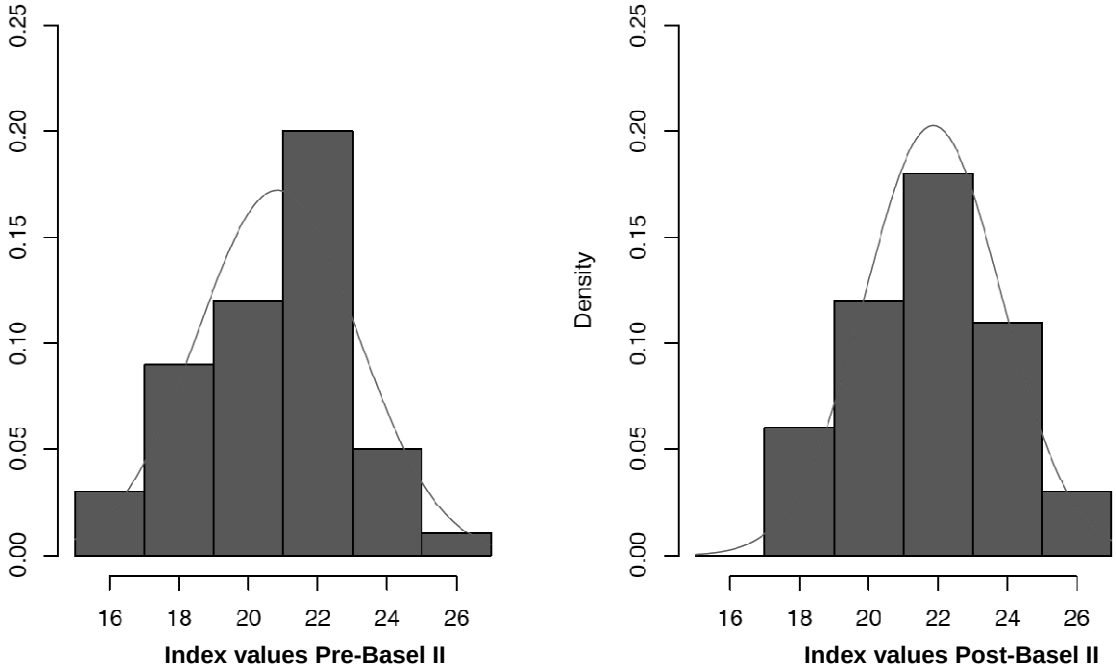

Figure 72 Histograms of Pre- and Post-Basel II index values including normal density plots (red line) regarding H3, financiers

Figure 73 to Figure 75 provide, on the left-hand side, boxplots of the index values calculated for Pre- and Post-Basel II index values, as well as the delta of the Pre- and Post-Basel II index values. The right-hand side illustrates the Q-Q plots of the respective data.

The Q-Q plots, especially the delta one, do not show a reasonably good fit to the theoretical normal quantiles in the lower and upper sections of the values. This is in line with the normality tests provided in Table 34 which rejects the assumption that the delta index values are normally distributed.

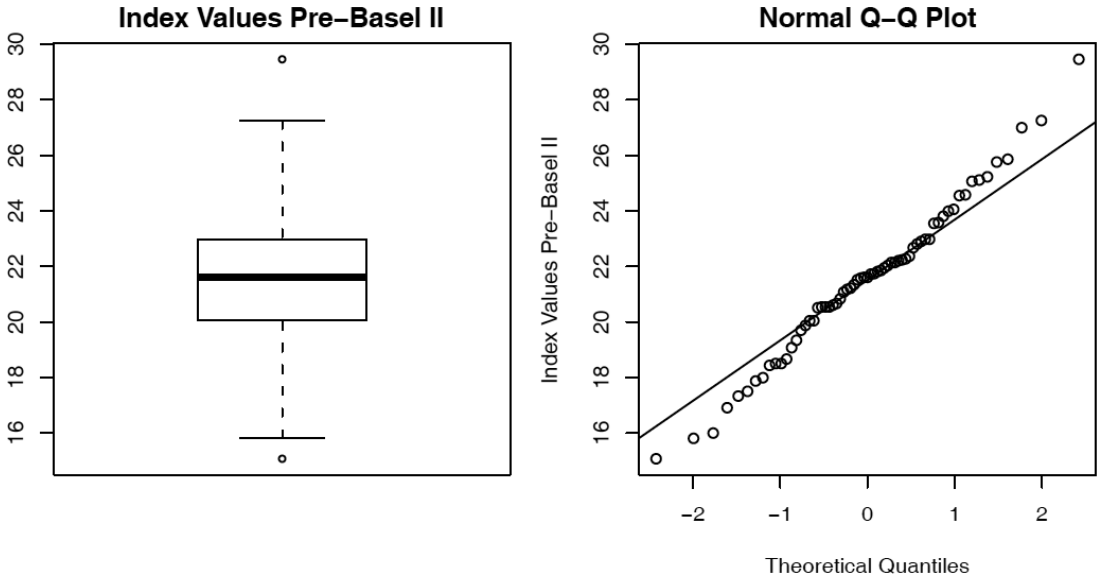

Figure 73 Boxplot and Q-Q plot Pre-Basel II (H3, financiers)

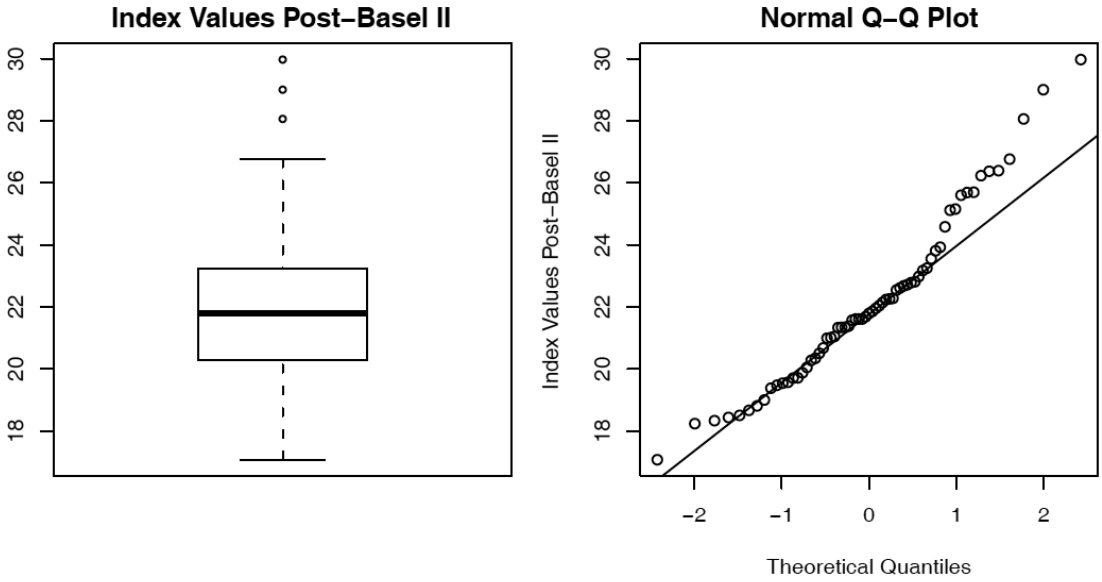

Figure 74 Boxplot and Q-Q plot Post-Basel II (H3, financiers)

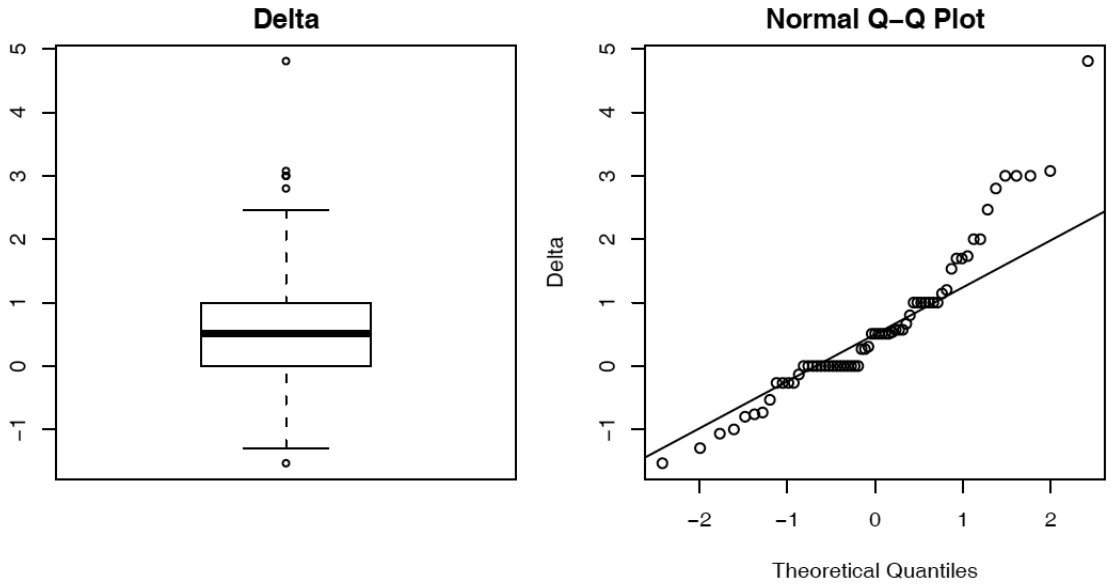

Figure 75 Boxplot and Q-Q plot delta for H3, financiers (Pre-Basel II to Post-Basel II)

The outliers, as shown in the boxplots above, comprise again of only non-bank financiers with a focus on private-equity, the outliers in the upper end are to a major extent identical with the outliers in section 5.4.2 (see justification there). The two outliers at the lower end comprise two private equity companies which have a large fund size. Larger fund sizes indicate, according to the financiers interviewed (see section 6), a focus on major SMEs / companies which normally implies a stronger leverage of the equity provided with credits. As described in the supply section 2.9.1, LBOs will become increasingly difficult which might be the explanation for these outliers.

Only the KS-test for the Post- and Pre-Basel II index values (see Table 34) provide evidence for normality. The KS-test statistics of $D_{p\,(H3,FIN)} = 0.118$ and $D_{f\,(H3,FIN)} = 0.1013$ result in p-values of $p_{p\,(H3,FIN)} = 0.07896$ and $p_{f\,(H3,FIN)} = 0.2252$. The two p-values are bigger than 0.05. This means that the assumption that the underlying Pre- and Post-Basel II values are normally distributed cannot be rejected with a significance level of 5%. On the other hand, this cannot be assumed for the delta index, where the assumption of a normal distribution is rejected ($D_{\Delta\,(H3,FIN)} = 0.1643$, $p_{\Delta\,(H3,FIN)} = 0.001712$).

	Kolmogorov-Smirnov (KS) test	
	Test stat D	p-value
$H3_{p\ (FIN)}$	0.118	0.07896
$H3_{f\ (FIN)}$	0.1013	0.2252
$H3_{\Delta\ (FIN)}$	0.1643	0.001712

Table 34 Normality test results for H3 (financiers)

The KS-test rejects the null hypothesis of normally distributed delta index values on a significance level of 5%. As described above, the Q-Q plots indicate that in this case problems with normality are present too. Due to these facts, the paired t-test which relies on the normality assumption is not meaningful for the financiers' perspective of H3. In order to verify the financiers' perspective of H3, the non-parametric Wilcoxon signed-rank test is applied. As this test does not make assumptions on the distribution of the underlying values, the assumption of normally distributed delta index values is not necessary. As a 'positive shift' in the index values from Pre- to Post-Basel II is of interest, a version of the standard Wilcoxon signed-rank test is used which tests directly for 'higher' Post-Basel II values in relation to Pre-Basel II ones (see section 5.4.2). Hence, the null hypothesis of $\mu_{p\ (H3,FIN)}$ being higher or equal than $\mu_{f\ (H3,FIN)}$ is tested against the alternative that $\mu_{p\ (H3,FIN)} < \mu_{f\ (H3,FIN)}$.

Wilcoxon signed-rank test:

$$H_0 : \mu_{p\ (H3,FIN)} \geq \mu_{f\ (H3,FIN)} \qquad H_1 : \mu_{p\ (H3,FIN)} < \mu_{f\ (H3,FIN)}$$

Applying the Wilcoxon signed-rank test shows that the change of $\mu_{p\ (H3,FIN)}$ and $\mu_{f\ (H3,FIN)}$ is statistically significant (see Table 35). The test statistic of $W = 939.5$ results in a p-value of $p = 0.01627$. As illustrated in Table 32,

the mean of the Post-Basel II index values ($\mu_{f\ (H3,FIN)} = 21.860$) is bigger than the mean of the Pre-Basel II index values ($\mu_{p\ (H3,FIN)} = 20.838$). Hence, the null-hypothesis, that the mean of Pre-Basel II index values is greater or equal than the mean of the Post-Basel II index values, is rejected on a significance level of 5% (α =0.05).

	Wilcoxon signed-rank test	
	Test stat W	p-value
$H3_{\Delta\ (FIN)}$	939.5	0.01627

Table 35 Wilcoxon signed-rank test results for H3 (financiers)

As H_0 is rejected on a significance level of 5% (see above, Wilcoxon signed-rank test) and the index values are a measurement for the 'affinity to non-bank financiers' (as explained in section 4.2.3 and 4.2.4), this provides evidence regarding H3 from a financiers' perspective too. Hence, the 'affinity to non-bank financiers' from a financiers' perspective is enhanced.

Correlations regarding H3 financiers

Figure 76 illustrates the correlation of the financiers' items regarding H3. In the lower left area, which is shaded in red, the Pre-Basel II correlations are shown, whereas in the upper right area the Post-Basel II values are illustrated, in green.

	Sweetspot min. revenue	Sweetspot max revenue	Good market position	Leading edge prod. / tech.	Future growth options	No. of sources provided	No. of phases supported	No. of sectors supported
Sweetspot revenue min.	**1**	**0.47**	**0.01**	**0.08**	**0.01**	**-0.38**	**-0.12**	**0.10**
Sweetspot revenue max.	**0.51**	**1**	**-0.19**	**-0.13**	**-0.10**	**-0.23**	**0.16**	**0.19**
Good market position	**0.24**	**0.09**	**1**	**0.43**	**0.33**	**-0.10**	**-0.18**	**-0.24**
Leading edge prod. / tech.	**0.11**	**-0.08**	**0.59**	**1**	**0.08**	**0.01**	**-0.13**	**-0.30**
Future growth options	**-0.00**	**-0.08**	**0.59**	**0.56**	**1**	**-0.10**	**0.08**	**-0.18**
No. of sources provided	**-0.42**	**-0.27**	**-0.04**	**0.11**	**0.14**	**1**	**0.00**	**0.10**
No. of phases supported	**-0.19**	**0.13**	**-0.09**	**-0.14**	**0.20**	**0.10**	**1**	**0.28**
No. of sectors supported	**0.08**	**0.14**	**-0.03**	**-0.12**	**0.04**	**0.13**	**0.30**	**1**

Figure 76 Estimated correlations for items used in the financiers' index for H3 using Pre-Basel II data

As discussed in section 5.4.1, the following analysis focuses on stronger correlations only. From a Pre- and Post-Basel II perspective, the minimum and maximum revenue thresholds are positively correlated. This is sensible as the background gathering interviews provide evidence that non-bank financiers try to have a sharp focus regarding investment sweetspots. Therefore, they either go for greater or for smaller companies, with the lower and upper bound, which are changed into the same direction. Analogous to SMEs, there is a positive correlation as explained in section 5.6.1 regarding the following variables: Post- and Pre-Basel II assessment of 'market position' and 'leading edge technology' ($\rho_p = 0.51$ and $\rho_f = 0.47$), the Pre-

Basel II assessment of 'future growth option' and 'good market position' ($\rho_p = 0.59$) as well as 'leading edge technologies' ($\rho_p = 0.56$). In terms of Post-Basel II, the financiers – unlike the SMEs – expect a far lower positive correlation. An explanation is provided by the qualitative analysis in section 6, as financiers focus stronger on financial stability in the Post-Basel II era.

Finally, the 'number of financial sources' provided is negatively correlated to the minimum revenue threshold, especially from a Pre-Basel II perspective ($\rho_p = -0.42$). As stated in the literature review (see section 3) and acknowledged by the financiers' interviewees (see section 6.7), it is stated that IPOs or private equity is an option for the major SMEs only (see Frey and Kuhn, 2007, or Troubridge, 2008, for example). Therefore, for smaller SMEs the range of financial sources provided has to be widened in order to address the needs and potential of smaller SMEs.

Multiple linear regression for H3 – financiers

Finally, testing H3 from a financier's perspective, using the model above, provides evidence that 'financiers will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies'. Now, the question is how do characterising factors, of the financiers, influence this appraisal. In order to achieve this, a variety of possible factors, influencing the willingness to engage in SME finance, are chosen. Among these factors, six are extracted which provide the 'best' linear regression model according to the AIC (Train, 2009:367). In principle, the AIC measures the fit of the considered model (see Gujarati, 2003:219), but it also takes into account the model complexity by introducing a penalty term, depending on the number of variables used (Akaike, 1974).

The resulting linear regression model consists of six covariates and a negative intercept (-0.86). Therefore, the willingness of financiers to engage

in SME corporate financing, when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies, could be explained by:

$$\Delta \mathrm{Y}_{\mathrm{H3}}^{\mathrm{FIN}} = -0.86 - 0.17 * X_7^{FIN,1} - 0.0052 * X_8^{FIN,1} + 2.56 * X_9^{FIN,1} - 0.083 * X_{35,\Delta}^{FIN,2} + 0.53 * X_9^{FIN,3} - 0.47 * X_{1,\Delta}^{FIN,I1}.$$

The variable description can be found in the codebook in Table 49 (see Appendix D).

By looking at the regression coefficients, it is observable that the 'geographic focus on Germany' ($X_7^{FIN,1}$) and on 'Europe' ($X_8^{FIN,1}$) yields a negative influence on H3. The same applies to the changes in the 'sweetspot EBIT minimum' ($X_{35,\Delta}^{FIN,2}$) as well as to the change in the 'number of financing sources provided' ($X_{1,\Delta}^{FIN,I1}$). On the other hand, the 'geographic focus: worldwide' ($X_9^{FIN,1}$), as well as the 'importance of trade press / internet as info source' ($X_9^{FIN,3}$) has a positive influence on H3 from a financier's perspective.

According to the p-values in Table 36, the influencing variable 'geographic focus: worldwide' does have a very statistically significant influence on H3 ($X_9^{SME,1}, P = .0000053$). The 'importance of the trade press / internet as info source' ($X_9^{FIN,3}, P = .006$), the change of the 'sweetspot EBIT minimum" ($X_{35,\Delta}^{FIN,2}, P = .04$) as well as the 'number of financing sources provided' ($X_{1,\Delta}^{FIN,I1}, P = .001$) are statistically significant too. The two factors 'geographic focus: Germany' ($X_7^{SME,1}, P = .52$) and 'geographic focus: Europe' ($X_8^{SME,1}, P = .99$) are not significant but should be used as they add explanatory power to the model.

The overall F-statistic (see Gujarati, 2003:219) is 7.234, on 6 and 36 degrees of freedom, which results in a p-value of .000041. This means that the F-test using the null-hypothesis that all variable coefficients are zero will (Robson, 2002:442) be rejected, at a confidence level of 0.000041 which is a very good result (the best for all hypothesis). Furthermore, the multiple R-squared of 0.5466 is very high. The multiple R-squared measures the variation in the data explained by the model (Gujarati, 2003:81-87). Hence, the model is capable of explaining about 55% of the variation inherited in the index data which is a very good value in the context of such data.

Coefficients	Parameter Estimate	Std. Error	P-Value
Intercept	-0.86	0.50	0.09
$X_7^{FIN,1}$	-0.17	0.27	0.52
$X_8^{FIN,1}$	-0.0054	0.34	0.99
$X_9^{FIN,1}$	2.56	0.48	0.0000053
$X_{35,\Delta}^{FIN,2}$	-0.083	0.040	0.04
$X_9^{FIN,3}$	0.53	0.18	0.006
$X_{1,\Delta}^{FIN,I1}$	-0.47	0.14	0.001

Table 36 Overview of H3 FIN regression coefficients

Regression diagnostics

In order to evaluate the fit of the proposed model, it is necessary to take a look at regression diagnostics. Therefore, the (Pearson) residuals of the model are plotted against the fitted values (see Figure 77).

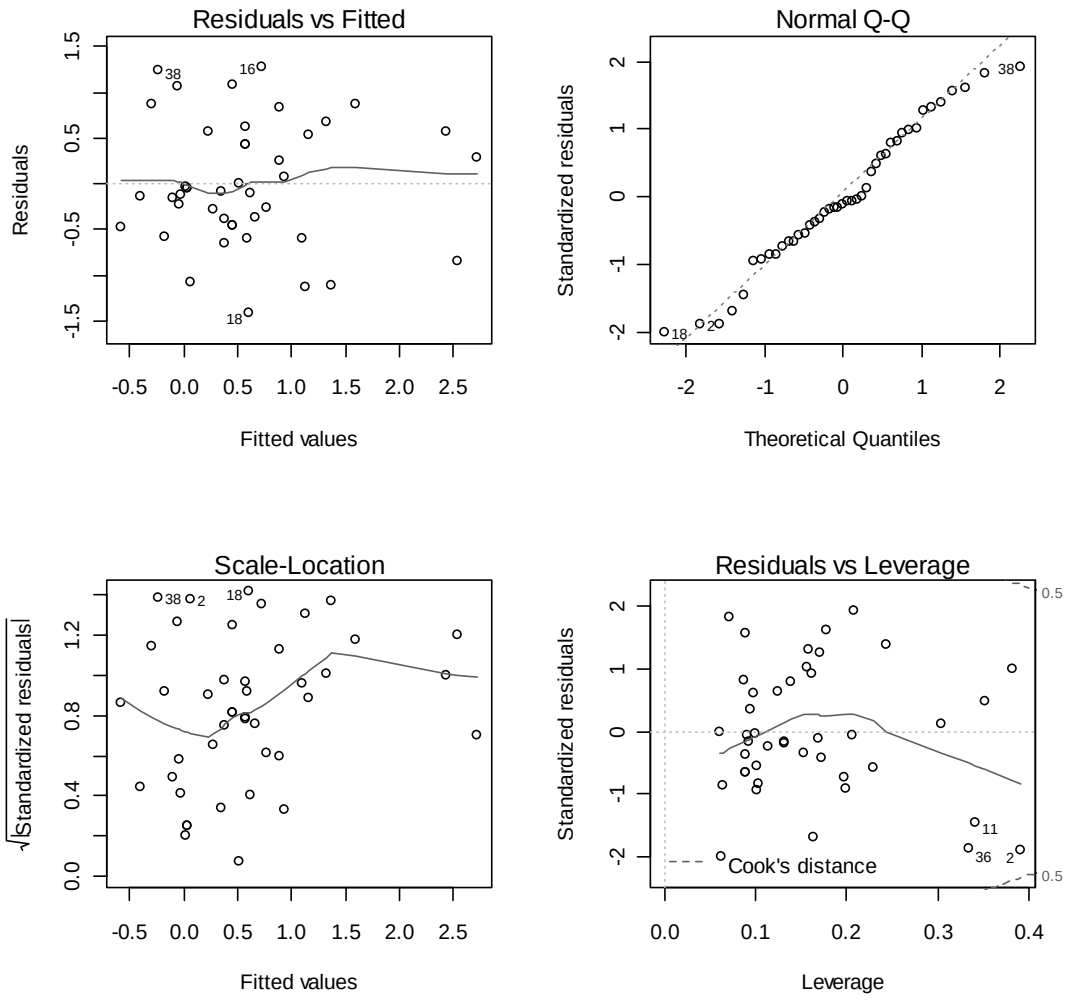

Figure 77 Regression diagnostics for H3 FIN

The plot of the (Pearson) residuals, against the fitted values in Figure 77, show no particular pattern or some sort of functional dependency; hence, based on the residuals there is no evidence to challenge the fit of the model to the data. The second important part is to check the residuals for normality and homoscedasticity as these assumptions are essential for linear models. Figure 77 provides a Q-Q plot (upper left) and a Scale-Location plot (lower right) of the standardised residuals against the fitted values. The Q-Q plot shows some minor deviations from the normality assumption, in the upper and lower tail. But, the overall fit is good. Furthermore, the Scale-Location plot indicates some minor changes in the variance for the standardised

residuals, but this change is not really significant and seems not to be functional when related to the fitted values. This is in line with the previous results and shows that the model yields a good fit to the provided data.

The last plot shows the so called Cooks distance of each residual. The Cooks distance is a measure of the influential power of an observation to the model. In general, the critical value is chosen to be 1. As the plot does not show any observation exhibiting a Cooks distance of greater than one, there are no influential observations.

5.7 SUMMARY OF THE QUANTITATIVE ANALYSIS

As stated in section 5.1, five models were set-up in order to test H1 ('house bank principle') and H3 ('affinity of SMEs and non-bank financiers') from the SMEs' and financiers' perspective, as well as H2 ('rating affinity') from the SMEs' point of view.

In order to provide evidence regarding the three hypotheses, the paired t-test (or Welch t-test in case of heteroscedasticity) is applied in order to show if the difference of $\mu_{p\,(Hn,TYPE)}$ and $\mu_{f\,(Hn,TYPE)}$ is statistically significant, given that the index values are normally distributed. As normality can be questioned regarding the financiers' models, the Wilcoxon signed-rank test is applied, in addition. These tests show that the change of $\mu_{p\,(H3,FIN)}$ to $\mu_{f\,(H3,FIN)}$ is statistically significant.

It turned out that the paired t-tests and the Wilcoxon signed-rank tests, regarding all five models for SMEs and financiers, were statistically significant regarding the differences / changes in the Pre- to Post-Basel II means.

- H1, SME: the test statistic $t = -3.5854$ of the paired t-test results in a p-value of $p = 0.0006911$. The test statistic of $W = 1{,}228.0$ of the Wilcoxon signed-rank test results in a p-value of $p = 0.005856$.
- H1 FIN: the t-test test statistic of $t = -7.5645$ of the paired t-test results in a p-value of $p = 1.890e-10$. The test statistic of $W = 1{,}619.5$ of the Wilcoxon signed-rank test results in a p-value of $p = 0.01092$.
- H2 SME: the test statistic of $t = -6.7017$ of the Welch t-test results in a p-value of $p = 9.274e-09$. The test statistic of $W = 651.5$ of the Wilcoxon signed-rank test results in a p-value of $p = 2.308e-09$.
- H3 SME: the test statistic of $t = 4.9759$ of the paired t-test results in a p-value of $p = 6.131e06$. The test statistic of $W = 1{,}192.0$ of the Wilcoxon signed-rank test results in a p-value of $p = 0.003181$.
- H3 FIN: the test statistic $t = -6.2353$ of the Welch t-test results in a p-value of $p =$ 1.014e-07. The test statistic of $W = 939.5$ of the Wilcoxon signed-rank test results in a p-value of $p = 0.01627$.

The regression diagnostics, at the end of each section, provided further evidence regarding each of the five models. Furthermore, all Post-Basel II index value means were bigger than the Pre-Basel II ones. In summary, the quantitative analysis provides evidence regarding the three hypotheses explained in section 4.2.3.

As discussed in section 4.3.3, some kind of control questions were introduced in order to assess how strong the participants regard the influence of Basel II with regards to changes in their assessment from a Pre- to a Post-Basel II point of view and regarding important question modules, used in the models tested in sections 5.4 to 5.6.

Figure 78 shows, on the left-hand side, the assessment regarding relevant SME question modules and, on the right-hand side, the respective financiers' counterpart. On a scale from 1 = 'no importance' to 4 = '(very) high importance', all assessments are well above 2.5. The variables (see codebook in Appendix D) included from the returned SME questionnaires are 'generic effect' ($X_1^{SME,1}$), 'investment criteria of non-bank financiers' ($X_{10}^{SME,5}$), 'sources of finance' ($X_{13}^{SME,4}$) and 'company focus' ($X_8^{SME,3}$). In terms of returned financier questionnaires, 'generic effect ($X_1^{FIN,3}$), 'sources of finance' ($X_{13}^{FIN,4}$), 'credit rejection criteria' ($X_{11,p}^{FIN,5}$) and 'investment criteria of non-bank financiers' ($X_9^{FIN,6}$) were taken into account.

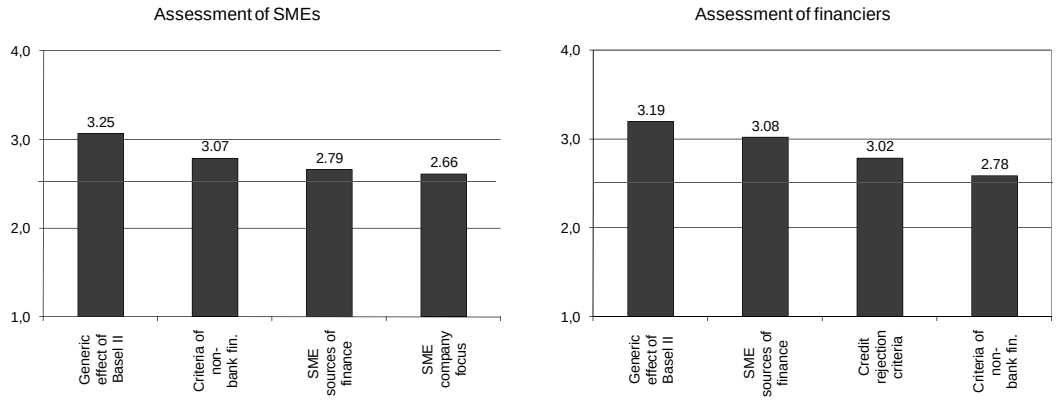

Figure 78 Assessment of Basel II influence regarding question modules

6 RESULTS OF THE QUALITATIVE ANALYSIS

As discussed already, the qualitative analysis of the semi-structured interviews is used to triangulate the findings and to provide richness beyond mere statistical significance (Creswell, 2003), which Goldberger (1991) calls 'practical or economic significance', as described in section 4. Deductively-based analytical procedures (Saunders et al, 2006:489) are used as these are most appropriate for answering the research question. The methods used are based on suggestions from Miles and Huberman (1994).

The first part of this section is connected with the generic parts of the interviews and summarises the SMEs' and the financiers' points of view on the 'catalyst effect' of Basel II on SME financing and the changes imposed. The second part details the SMEs' and financiers' points of view on the findings of the quantitative part of the study in order to obtain a deeper insight. Their answers were set in relation to the various sections, the hypotheses tested and to each other. 'Causal networks' are used to illustrate the bundled effects and to illustrate not only the effect-of-cause relationship but the causes of causes relationship (Olsen, 2003). In general, the findings from the quantitative section of the study and, therefore, the three hypotheses, were affirmed. However, the in-depth interviews provided additional insights, besides mere statistical significance. For example, views on the 'deterioration of the house bank principle' were only partly acknowledged and led to a refinement of the original hypothesis. This leads to partly amended hypotheses in line with Popperian methods (2002). Nearly all interviewees claimed that Basel II was a catalyst for change in terms of professionalising finance and controlling of SMEs, which led to a greater openness for non-credit alternatives. This would have otherwise not taken place. However, with regards to credit, some bank executives, in particular, believe that in a way the 'credit function' house bank principle is strengthened because shopping around for credit has become too cumbersome and ratings have become more equal. Putting these views together with the

contrary opinion from non-bank financiers indicates a shift from a ‘house bank’ principle to a ‘core bank’ principle, as described below.

6.1 SAMPLE SELECTION AND INTERVIEW PROCEDURE

As described in section 4.4.3, the aim of selecting interviewees as a purposive sample was to select important cases with certain ‘qualitative representativeness’. This meant that SMEs from various industries were selected, covering all SME clusters (micro enterprises, small enterprises and medium enterprises), and having varying financing strategies. Regarding financiers, the intention was to select cases from a broad spectrum with a strong footprint in SME financing. As discussed in section 4.3.2, the selection was based on the pre-defined selection criteria. The aim regarding management level was to include interviewees on a top-executive level as this will determine experience and insight of the subject matter. All interviewees selected fulfilled those criteria. The aim regarding ‘SME type’ was to include at least one important case in each SME category, according to the categorisation of the European Commission (2003b). According to various studies, like Gregory *et al* (2005) or Frey and Kuhn (2007), for example, ‘medium sized companies’ have a higher potential to incorporate various forms of corporate financing compared to smaller SMEs. Therefore, two examples of ‘medium sized companies’ are included. In every case it could be managed to interview the founder, CEO and owner of the respective SME.

An analogous procedure was applied as regards the financiers: one example from each relevant category, based on the literature review (see section 3), was chosen. This comprises a mix of various types of banks and providers of alternatives to credit (alternative funds and various types of private equity). Again, only top-level executives participated. One interviewee, for example, was a wealth-manager who is in charge of a family office comprising several billion euros in assets, with a focus in SME financing too. If the management

team comprised several team members, the Director / General Manager or Board Member was selected who was in charge of SME financing.

In addition to SMEs and financiers, one top-level executive of a leading industry association and a leading chartered accountant with a focus on SMEs, were included, as associations and chartered accounts play an important role in advising SMEs regarding Basel II. This became evident from the author's background gathering phase and the research about information infrastructures regarding credits (see section 2.9.3).

Following these selection criteria, 17 interviews were carried out in total, as all the interviewees selected agreed to participate. This shows a high rigour, as other mono-method Basel II related research, which did not include a quantitative phase upfront, used a lower sample size, showed much shorter interview times and / or a far lower seniority level when compared to the qualitative survey used in this paper. Arons (2008), for example, based his findings about financing situations in Germany on interviews with managers from 11 banks. Wahlström (2009) conducted interviews, of 30 to 40 minutes in length, with managers (including middle management) from four banks, regarding the acceptance of Basel II.

The access to senior executives was conducted via the telephone directly and not via the assistant. During these calls, the author informed the interviewees about the purpose, scope and procedure as well as the ethical issues involved; this was based on a script, in order to ensure a unified information flow.

The interviewer asked the interviewees at which place the interviewee wanted to be interviewed. All interviews stated that the interview should be carried out at the premises of the interviewees, in their office or a separate conference room (two in the dining room facilities), which is in line with Saunders *et al* (2007:321). He points out that '*you should choose a location for your interviews which is convenient for your participants, where they feel comfortable and where the interview is unlikely to be disturbed*'.

The interviews were carried out between mid March 2009 and the end of May 2009 (see Table 37). The interviews lasted between 47 and 81 minutes in length. As described in section 4.5, ethical considerations were brought forward, on a general basis, during the arrangement of the interview appointments and, in detail, at the beginning of the semi-structured interviews by means of going through the informed consent letter (see Appendix F). All interviewees acknowledged conducting the interview on the basis stated in the informed consent letter.

Abbreviation used in text	**Type of company**	**Classification of company**	**Professional role of interviewee**	**Interview was conducted**	**Duration**
MicroSME	SME	Micro enterprise	Founder, CEO and Owner	May 24th 2009	64 minutes
SmallSME	SME	Small enterprise	Founder, CEO and Owner	April 9th 2009	76 minutes
MachinerySME	SME	Medium-sized enterprise	Founder, CEO and Owner	April 20th 2009	81 minutes
ServicesSME	SME	Medium-sized enterprise	Founder, CEO and Owner	April 27th 2009	50 minutes
SavingsBank	Financier	Savings-Bank	Director	May 27th 2009	63 minutes
StateBank	Financier	State-owned bank	Director	April 27th 2009	59 minutes
LargeBank	Financier	Large commercial bank	Director	April 28th 2009	58 minutes
PrivateBank	Financier	Private bank	Director	May 25th 2009	74 minutes
Mezzanine Bank	Financier	Large provider of alternative funds	Director	March 26th 2009	62 minutes
SeedPE	Financier	Private equity company with focus on micro SME financing	Founder and CEO	March 15th 2009	48 minutes
GermanPE	Financier	Private equity company with focus on SME financing in Germany	Member of the Board	March 30th 2009	57 minutes
StatePE	Financier	State-owned private equity company with focus on SMEs	Managing Partner	March 24th 2009	56 minutes

InternationalPE	Financier	Private equity company with focus on SME financing in Europe	Principal Partner	April 30th 2009	57 minutes
RestructuringPE	Financier	Private equity company with focus on SME turn-around financing in Germany	General Manager	April 23rd 2009	73 minutes
FamilyOffice	Financier	Private-wealth Manager of one of the biggest German industrial families in Germany with focus on SMEs	CEO	March 20th 2009	47 minutes
Chartered Accountant	Inter-mediary	One of the biggest chartered accountant with focus on SMEs	Managing Partner	March 31st 2009	58 minutes
SMEAssociation	Inter-mediary	One of the biggest Industrial Associations	Director SME politics	April 16th 2009	62 minutes

Table 37 Interview overview

6.2 SELECTED SAMPLE

Before the findings from the qualitative study are explained, the personal and company backgrounds of the interviewees is provided to set the scene. It enables to provide evidence for the validity of the purposive qualitative sample (senior level and experience of the interviewees as well as leading position of the financiers), and to point out potential bias within the answers.

6.2.1 Purposive Sample SME

MicroSME

MicroSME is a company with four employees and three full-time equivalents. The set-up of the company was stated to be ‘involuntarily’. When his former

employer laid off 10% of the workforce more than 15 years ago, the founder started as a consultant, with his wife, for his former employer. With a growing customer base major clients urged the entrepreneur to fund a limited company. He never regretted this move from a manager to an entrepreneur because of the degree of freedom, despite problems the company was facing in between. In the beginning, the company started in the publishing sector with up to 15 employees and a high dependency on two to three companies. When the special publishing market became more and more commoditised they moved towards IT programming, on a lower revenue scale, but with less dependency as the revenue is spread out over 15 customers now and more freelancers are included. In terms of financing he stuck to his house bank due to the good relationship with management and the high level of trust. The bank, for example, supported trying to find financing alternatives in difficult times of strategic restructuring. During the evaluation of subsidised loans, the entrepreneur became aware of rating and its importance. Furthermore, private equity was evaluated during this period of restructuring for future growth options as ‘a bank is not risk taking’. Credit is securitised and MicroSME provides the bank with regular Basel II information due to the rating experience.

SmallSME

SmallSME is in the educational business. After a short period as a manager he set-up his business exactly 20 years ago. He has currently 20 employees and approximately 15 full-time equivalents on a sub-contractor basis which is typical for this kind of business. During his entrepreneurial background he gained a lot of experience in corporate financing. In order to set up his business he made a business plan to get a state-funded loan which was denied. Instead he got a private bank loan which was used with the knowledge from the savings bank to set-up his business. As the business grew steadily the relationship with the house bank ran smoothly until Basel II

was on the radar. Whereas in the first 15 years the relationship was close with the board, it changed from one day to another to a ‘mechanistic one’. Since then, credit has had to be secured with up to 50%, credit limits were drastically reduced and his private house financing with the bank, which had been welcomed initially, became a problem due to the ‘bulk risk comprising company and entrepreneur as a private client’. Despite a profitable and steady business, his rating, which was very good for an SME, deteriorated by two steps, ‘due to superordinate reasons’ the banker could not explain. Because of this experience investments were deferred, other means of finance had been considered, such as subsidised loans on apprentices or leasing. Currently he is evaluating private equity to finance growth in future markets.

MachinerySME

MachinerySME is a medium enterprise with a one-digit million euros number in revenues and more than 10 employees. However, MachinerySME ranks as the leading automotive and production company amongst its clients and delivers special purpose machines to three continents. This is possible with such a small team as the majority of parts are bought and only special purpose elements and innovative electronic control devices are added. As the company’s business is a project driven one there are major deviations in sales between years of up to 50%.

The CEO and owner of the company set-up the business in the 1980s after working in the German subsidiary of a US machinery company. When he realised that this huge company did not live up to its potential in Germany he set up his own enterprise in order to ‘make things better in a special niche area’ and to enjoy more freedom in decision taking. MachinerySME is a typical SME example of an industrial ‘Mittelstands’ firm. Stability and ‘degrees of freedom’ are main goals rather than market share and goals. This is reflected in an equity capital ratio of more than 40%.

MachinerySME is working with one house bank (a state related savings bank). In the past he looked around at other opportunities (other banks and mezzanines) in order to compare rates. However, rather than having the absolute best rate, the manner of dealing with the financial institute is of decisive importance. For example, the saving bank provides the entrepreneur with regular reports on sector benchmarks in terms of labour cost etc. which is highly appreciated. On the other hand, internal financing is preferred, credit is used primarily as working capital financing and regarding project financing to a small extent. At least once a year a major meeting is set up regarding rating and benchmark issues. The rating is therefore known and credit rates developed positively since Basel II due to the comparable favourable rating results.

ServicesSME

ServicesSME has much more than one hundred employees and some tens of million euros in revenues. It is a typical medium sized SME set-up by a self-made entrepreneur. He has been active for decades in the area of B2B services. Despite the financial crisis he experienced two digit growth rates and believes himself to be a winner in the cut-throat competition. He started his venture right after his diploma as he did not want to be subordinate to other people with less capabilities compared to his own. The primary motivation of becoming an entrepreneur, right from the start, was a high degree of self-determination. Therefore he is reluctant to look for finance as this lowers his degree of self-determination. Financing is used primarily for project financing and as working capital buffer. In order not to disclose account statements he posted securities; in order to stay self-determined, he even deferred investments. On the other hand, his company is working strongly for the financial services industry and made one of the earliest studies regarding the Basel II effect several years ago.

6.2.2 Purposive Sample Financiers

SavingsBank

With a balance sheet comprising several billion euros and several thousand employees, SavingsBank is one of the leading savings banks in Germany. The interviewee started with the bank after an apprenticeship and ran through various jobs. When the savings bank split up, dividing into a private and a corporate section, he moved to the corporate section because it offered him the chance to gain detailed insights into sectors and companies. Since 2001, he has been dedicated to the SME business which suits him best as he is ‘down to earth’ and because SavingsBank does not have a strategy shift every three years as is often the case with the larger banks. He recently was promoted to be director of a major client region.

StateBank

StateBank is a state owned SME centric bank with several thousand employees. The manager has been active for nearly 20 years and was active in the working group on Basel II which was responsible – besides the activities of the respective governmental departments – for defining the SME packages fostered by the German government. The focus of his DBA thesis was on regulation in the banking / SME context. He published several articles in the Basel II area and is a lecturer on congresses.

LargeBank

LargeBank ranks amongst the largest European banks with a strong origin and footprint in Germany. LargeBank covers all kinds of banking activities with a strong and successful SME focus. On the verge of Basel II the bank expanded its SME funds to provide other forms of financing, such as mezzanine, and consulting regarding corporate financing.

The LargeBank manager conducted his thesis in the area of SME financing in the Pre-Basel II era. He worked in various departments of the bank as an analyst and relationship manager – covering SMEs as well as larger corporations.

PrivateBank

Like any typical ‘private bank’, PrivateBank is focused on entrepreneurs with all their needs – from asset management to credits for their ‘Mittelstand’ company. It is part of a major bank. PrivateBank is regionally focused and offers a broad portfolio besides credit via its mother company, and other financial services are provided as a ‘one stop shop’. The interviewee joined PrivateBank 24 years ago, right after his MBA with a focus on taxes and legal affairs. He started in the credit department, moved to the area of subsidised credits and thereafter to corporate banking. He has headed the corporate banking department since 2005.

MezzanineBank

The interviewee is the Senior Director of one of the biggest mezzanine banks in Germany which belongs to a big general bank. He has a track record in a broad spectrum of means of finance, ranging from credit, to mezzanine and equity capital. He was engaged in SME financing for nearly 10 years at a renowned SME centric bank selling long-term credit to SMEs. Within the same institute he was responsible for the private equity assets of the bank. After that he moved to MezzanineBank as he had already conducted joint projects with his previous employer and wanted to be active in a more international setting, regarding SME financing.

When he joined MezzanineBank private equity services were provided before the bank switched its focus to mezzanine. The special variant is ‘individual mezzanine’ rather than generic ‘program mezzanine’. There are several

hundred million euros of mezzanine funds under management, spread over nearly 100 SMEs. SMEs should have at least 15 million in revenues. The team comprises more than 10 managers with additional people added on a project basis. He works in SME financing because of the long-term relationship with the SMEs, in contrast to the transaction-oriented financing needs of major corporations.

SeedPE

SeedPE primarily focuses on seed financing from the foundation of a company or spin-off to the first venture capital round. It has a successful track record with a ROI beyond five, even in difficult times. With more than 10 employees in recent years, more than 10 million euros have been invested – with no leverage involved. The sweetspot is an investment of 1 to 2 million euros, especially in the high-tech area. SeedPE focuses on contra-cyclical investments. The founder and CEO is a serial entrepreneur who built up and sold several high-tech businesses, including a very successful public listed company. His motivation is to enable other entrepreneurs to become successful as well, and to leverage his entrepreneurial experience. Therefore the SeedPE team provides money only in ‘homeopathic dosages’. In addition to money, a broad portfolio of capabilities and advice is offered to the portfolio companies.

GermanPE

With several hundred SME growth financing and buy-out transactions in recent decades, GermanPE takes a leading role in non-credit corporate financing of SMEs in Germany. The focus is on technology-driven companies and industry-related services with a valid growth potential, an attractive market environment, a strong niche market position and a ratio potential regarding operations. The focus is on growth financing and buy-outs. The sweetspot comprises major ‘Mittelstand’ companies with sustainable EBITs

beyond 10% (‘in normal times’). Normally, a two digit million euros amount of equity is invested per case. The board member, who was willing to participate, started his career as a chartered accountant at a Big 4 company in the area of mergers and acquisitions. He moved into the private equity business because he wanted to work on a strategic relationship basis, rather than on a short-term transactional one as is the case with M&A consulting.

StatePE

StatePE is one of the biggest providers of non-credit financing for SMEs in Germany. The general manager of StatePE has been active in private equity for more than 20 years and is one of the (founding) fathers of a renowned private equity association. Prior to his current responsibility he worked in senior positions at one of the oldest and most renowned German private equity companies with a dedication to SMEs, as well as one of the biggest private equity companies on a worldwide basis for the German market. His interest in SME financing is in the project-based approach and the strategic impact of his business, rather than ‘making pricing calculation on rocket-high exit-valuations’.

InternationalPE

InternationalPE is dedicated to SMEs with a fund volume of several hundred million euros in Europe. The German team invests, typically, some tens of million euros in SMEs with a good market position and a valid growth option. Nearly 10% of the employees are based in Germany which is – besides the United States – the most important market. In the case of LBOs, the credit terms and conditions and covenants are facilitated as a package for the new portfolio company. As InternationalPE is looking for companies with a good market position these SMEs typically have high EBIT ratios and valid ratings.

RestructuringPE

The private equity company is focused on carve-outs from major corporations and on buy-outs of SMEs where a restructuring effort and therefore special skills are needed in addition to financing. It comprises tens of employees at the headquarters, as well as on-site at the portfolio companies. There is no special focus regarding sector or size of the SMEs. The focus lies on the deal structure (pricing) and operational leverage which can be exploited.

The interviewee is experienced in the buy side as well as the sell side. He started as a portfolio manager and sales trader regarding various (structured) products and is now in charge of deal structuring, as well as financing of portfolios and the holding company. His motivation to work for the private equity company was to get to know the cash-in side of the business.

The variety of financial instruments ranges from credit for well situated portfolio SMEs to asset based forms like factoring, sale-and-lease-back as well as trademark financing, which is not yet accepted in Germany.

FamilyOffice

A family office manager was selected as, according to an AT Kearney survey (Hoyningen-Huene, 2008), state-funds and family offices will play a strong role in financing due to the credit crunch.

The family office is responsible for the investment strategy of parts of an industrial family fortune of several billion euros. It comprises various means of financing, including direct investments in SMEs on a venture and on a buy-out basis covering a broad range of phases and industries. Key-decision criteria include the management capability and the alignment of the strategy of the management with the strategy of the industrial family represented by the family office. The core managerial focus is on strategy discussions and alignment, rather than day-to-day controlling. The interviewee is the CEO of this family office.

6.2.3 Purposive Sample SME Intermediates

In order to triangulate the views from SMEs and financiers, two important intermediaries with a sole focus on SMEs were added: a leading chartered accountant as well as a leading SME association.

CharteredAccountant

CharteredAccountant is one-of the leading German accountants dedicated to SMEs with some tens of premises around the globe. As a kind of one stop supply the various business units offer consulting, chartered accountant services as well as legal advice services to SMEs. The interviewee is the managing partner and has been with the company due to a close relationship with the founder for more than 20 years. His motivation for working with SMEs in the financial area is to work directly with the owners of the companies and to accompany strategic issues on a long-term basis.

SMEAssociation

The SME lobbying association comprises nearly a hundred economy or employer associations and some tens of corporations in a strong economic region covering several million SME employees. The manager had been the general manager of an SME-centric research institute, which was associated with a renowned German university for several years. He moved to the SME association several years ago and worked there in several areas before becoming responsible for the SME policy deployment resort a couple of years ago.

6.3 ANALYTICAL APPROACH REGARDING QUALITATIVE ANALYSIS

The analytical approach is in line with Saunders *et al* (2007:491). Starting with a theoretical framework (here: hypotheses tested in the empirical

quantitative section 5), the pre-selecting of suitable cases, and the literature and theory reviewed, shaped the data collection, as occurred in the quantitative part of the study. Creswell (2003:131) adds to this by pointing out that qualitative research, during the 1980s, underwent a transformation to broaden its scope of inquiry to include '*these theoretical lenses*'. He states that '*mixed-methods studies may include theory [here: the findings from the quantitative analysis] deductively in theory testing and verification*' (Creswell, 2003:136).

The specific type applied is the template approach, introduced by Crabtree and Miller (1992). As suggested by Crabtree and Miller (1992), key codes were determined on an 'a priori' basis – on the basis of the research question and the findings from the quantitative analysis being the theoretical framework. The deriving of these codes from the research question and the hypothesis tested in the quantitative analysis, is in line with Saunders *et al* (2007) who – like Crabtree and Miller (1992) – opts for deriving the codes from a predetermined analytical framework (here: hypotheses tested). These codes are used as templates, in terms of the data analysis; therefore, only second level coding (Miles and Huberman, 1994) is applied. That means that grouping the number of themes to the category is used, rather than first level coding (attaching labels to groups of words) due to the preceding quantitative-based research. Data are consequently 'unitised' by assigning parts of the various interview summary session sheets to the respective categories.

The aggregation takes place in a two-step process in line with Robson (2002). In the first step, the interview text was reduced by means of session summary sheets (as discussed in section 4.4.4). Based on these session summary sheets (see example in Appendix G) notes / memos were added to the initial codes. In deriving the coding scheme, the author follows what Robson (2002:329) calls the '*mainstream methodological view'* to derive it from the research question. In the quantitative part of this thesis, the three

hypotheses were introduced to initially answer the research question within the first phase of the sequential mix-methods design, by means of a quantitative analysis. Therefore, the coding scheme is directly aligned to these three research hypotheses. This means that no pre-defined coding (Saunders *et al*, 2007) scheme for this exploratory study can be used. The categories are therefore related to the 'linguistic behaviour' (Robson, 2002:327) which covers whether the '*content of talking*' supports the hypothesis or supports the alternative hypothesis, as a kind of mutually exclusive and exhaustive coding scheme (henceforth: MEE, Robson, 2002:335).

The aim of the qualitative analysis is to provide deeper insights based on the findings of the foregoing quantitative analysis. Therefore, the coding scheme is extended by attaching 'labels' to the categories in the session summary (see example in Appendix G). The coding scheme was set up using the guidelines proposed by Robson (2002). It is shown in Table 38, the respective categories, codes and one sample 'label' per category, derived from the session summary sheets, are identified.

Code	**Category**	**Label (example)**
H1	Evidence regarding Hypothesis 1 is provided: 'corporate finance is becoming more difficult for SMEs because the house bank principle is deteriorating'.	*'Enhanced Awareness for Finance & Administration fosters looking for no-credit options.'*
Not-H1	Evidence regarding alternative hypothesis to hypothesis 1.	*'SMEs might lack alternatives for house banks.'*
H2a	Evidence regarding hypothesis 2.a is provided: 'SMEs can cope best by improving rating parameters'.	*'Basel II serves as a catalyst.'*
Not-H2a	Evidence regarding alternative hypothesis to hypothesis 2.a.	*'Rating parameters are not as important as the financial crisis puts a focus on cash rather than rating parameters.'*

H3 (= H2b)	Evidence regarding Hypothesis 2b and 3 is provided: 'financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies'.	*'SME strategy is in general private equity affine.'*
Not-H3 (= Not-H2b)	Evidence regarding alternative hypothesis to hypothesis 2.b and 3.	*'Private equity becomes more risk averse due to Basel II and the current financial crisis.'*

Table 38 Coding scheme

The labels support what Robson (2002:329) calls the '*hypothesis generation function*' in exploratory research designs. As will be shown in section 7, the initial hypotheses will be amended by the findings from the qualitative analysis. The labels will be set in relation to the research question, by means of causal networks (Miles and Huberman, 1994). The labels were not attached directly into the session summary sheets, but evolved during the construction of the causal networks (see section 4.4.4). As mentioned above, only second level coding rather than first level coding is used. Therefore, the software used is a text processor which is suitable, according to Robson (2002), for such kinds of qualitative research. Assigning labels to the categories, within causal network design, is the essential task due to the predefined context of the quantitative analysis and the hypotheses derived from the research questions.

Figure 79 shows an excerpt from an amended session summary report and, in Figure 80, a sample causal network is also provided. Codes which provide evidence regarding the hypothesis are displayed as 'green coloured notes', codes which provide evidence regarding the alternative hypothesis are displayed as 'red coloured notes'. Codes which referred to the second half of the research question (how SMEs can cope best with the effect of Basel II), are displayed as 'yellow coloured notes'.

Figure 79 Excerpt session summary sheet with codes

The analysis of the codes in the session summary sheets, provides the basis for the qualitative analysis by means of causal networks. An example regarding hypothesis 1 is shown in Figure 80.

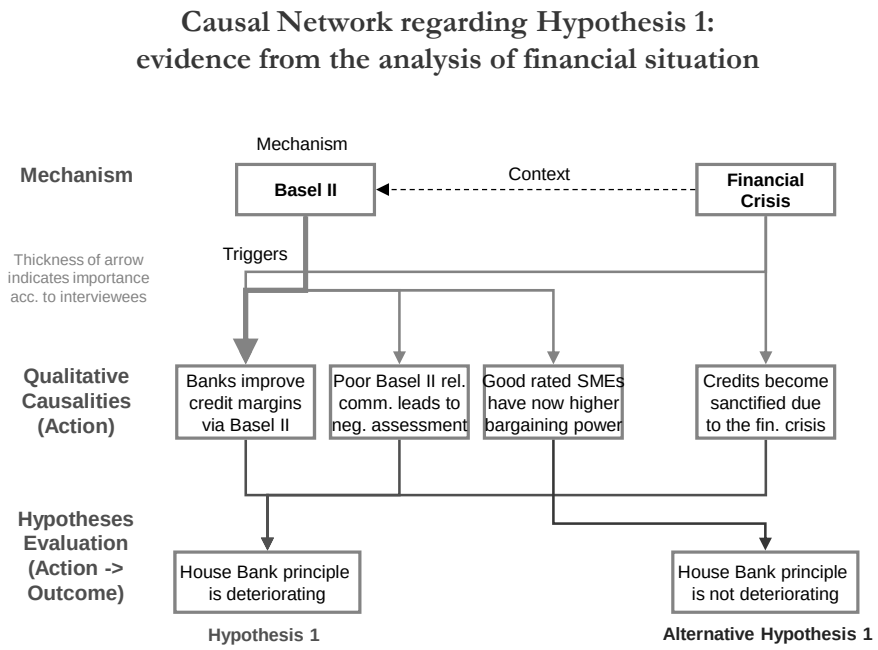

Figure 80 Sample causal network (here regarding hypothesis 1)

As illustrated in Appendix E, the interview schedules regarding SMEs and financiers differ only in the introductory part (personal and company background, etc.), whereas, the second part ('confronting with the findings from the quantitative analysis') is identical. Furthermore, the open questions part, in the introductory section of the interviews, is similar as the SME questionnaire reflects the demand side, whereas, the financier questionnaire reflects the supply side. Therefore, the coding scheme is identical as the second level coding is related to the initial hypothesis evaluated in the quantitative part. Yet, the labels attached differ which provides the intended 'practical, or economic significance' (Goldberger, 1991) by means of triangulation.

6.4 GENERAL ISSUES ON BASEL II AND SME FINANCING

Nearly all interviewees reflected on Basel II as being a long-term catalyst compared to the – hopefully – relatively short term effect of the financial crisis. This is in line with Nikitin and Smith's (2007) research, stating that the

financial crisis can be regarded as both a fundamental-based and a self-fulfilling prophecy-based phenomenon.

6.4.1 The SME View on Basel II

Interestingly enough, the SMEs interviewed regard Basel II not (only) as a threat but as part of an SME improvement process. Yet, SMEs believe that non-credit financiers and especially the Chambers of Commerce could do a much better job as neutral advisors to financing. ServicesSME and MachinerySME believe that Basel II urges SMEs to become more professional regarding finance and controlling, which is not the traditional stronghold of SMEs. Furthermore, the risk based approach favours companies with a high equity capital. MicroSME compared the rating to a school grade: '*you get a grade that means you must try to behave accordingly in order to get a good grade, for example regarding stability and equity capital'*. On the other hand, SmallSME and ServicesSME believe that Basel II is the prime reason for deferred investments of the 'Mittelstand'. ServicesSME states: '*Basel II caused lasting damage to the German economy. ... a significant amount of liquidity has been pulled out of the system with the consequence that entrepreneurs stopped investments'*. SmallSME raises a typical German Mittelstand concern that '*SMEs do not want to disclose too many internal corporate details'.*

Contrary to the findings of the quantitative study, ServicesSME and MicroSME believe that rating is not a prime issue anymore, as the discussion took place extensively three years ago. However, the screening upfront to grant credit has been more intense compared to Pre-Basel II times. On the other hand, the 'house bank' principle is not a one-way street – it is two directional. It means that SMEs have to be loyal too to a major extent and not always try to shop around even if fixed-income interest rates are temporarily more attractive at another financial institute. Conversely, in times of decline the options of shopping around are limited. This is especially true for smaller

SMEs according to MicroSME. SmallSME talked about the *'arrogance of the bankers'*, fostered by Basel II, as a pressure tool. In particular: '*we increased revenue and earnings, however we were rated down by two steps. The bank manager explained that there had been a change in the superordinate rating, but he could not or wanted not to explain in detail as it had just come out of the computer'*.

MachinerySME and MicroSME believe that the negative view on Basel II is primarily a classic prejudice, similar to, for example, the negative German view on the 'European Union'. However, SmallSME believes that the house bank principle will deteriorate and even smaller SMEs will search for and use alternative means of finance due to a reduced supply of credit, with higher costs and securities incurred. This 'accelerating factor' is in line with findings from Siemens Financial Services (SFS, 2009) amongst companies in France, Germany, the UK, Italy and Spain. In Germany the proportion of companies which expected rising credit rates rose from 29.9% to 55.2%. According to the survey, companies are trying to broaden their financing portfolio. However, an obstacle is that the private equity market for SMEs is not transparent enough. On the other hand, ServicesSME and SmallSME regard Basel II to be damaging for the economy in general, and for German SMEs in particular. Due to Basel II, liquidity (according to ServicesSME is '*the life blood of the economy*') has been withdrawn. This has led to some SMEs going bankrupt or stopping investment. ServicesSME experienced a growing arrogance by bank directors who used the rating process as a 'weapon'. Furthermore, he distrusts even more regulation because the *'state is not a good entrepreneur, as history and current examples show'*. SmallSME raises another issue by pointing out that German SMEs have a competitive disadvantage: '*German SMEs use German accounting principles rather than international ones, which don't have the same concept of EBITDA, for example*.'

6.4.2 The Financiers' View on Basel II

All financiers interviewed acknowledged the catalytic effect of Basel II. Contrary to the view of ServicesSME (*'damage to economy'*). SMEAssociation adds to that: '*Basel II has a very positive effect if you look at the development of the equity ratios. This was a position of points, induced by Basel II, which will turn out to be very beneficial!*'

Similar to the SMEs, financiers like LargeBank, PrivateBank and StateBank, for example, believe that Basel II will exert an effect on professionalising finance and controlling. A prerequisite for sufficient financing is high transparency (StateBank or MezzanineBank, for example). LargeBank states that Basel II triggered a change process: '*Basel is a catalyst for various changes regarding corporate financing'*. This change is fostered by the 'rating incentive' as PrivateBank concludes: '*SMEs are increasingly interested in learning how to improve the rating parameters'*. SavingsBank points out that Basel II is advantageous for good SMEs: '*prior to Basel II, the good SMEs subsidised the bad ones'.*

The majority of interviewees, like GermanPE, expect professionalism of company management in general, too, which has already begun according to SMEAssociation. He traces rising equity ratios back to Basel II related rating issues. As a next step SMEs realise that rating is not a means in itself, but that *'Improving rating means improving business'*. Yet, SavingsBank points out: *'this imposes a learning curve'*, in order to understand that the assessment is not on the entrepreneur side alone, but also on the company side too. Furthermore, Basel II was used by banks to repair their SME margins – this brings forth the fact that SMEs have taken ratings more seriously in order to lower the cost of credit financing. According to a survey of German magazine 'finance', in the fourth quarter of 2008 (Arons, 2008), bank lending managers acknowledged that margins improved due to low margins in the past and a lack of alternatives like ABS. Yet, SavingsBank comes to a different conclusion: as rating fosters a greater spread there will

be a battle to win the high-quality SMEs – for the sake of the margin. PrivateBank adds an interesting point: '*In total, credit rates did not become cheaper and it is a pity that margins did not become higher; margins went down a bit, but risk was significantly reduced. Thus, meaning that the reduction in margins does not only have a negative effect'*. He believes that margins have become fairer due to enhanced information exchange.

The catalytic effect of Basel II affects banks as well: from a subjective 'gut feeling' assessment to a more objective, standardised mode. LargeBank points out: '*one cannot heal poor performance by a good relationship, as a few key figures are decisive'.* Yet, a few point out that the 'gut feeling' is still relevant, as noted by PrivateBank, yet it is built into 'numbers'. On the other hand, SavingsBank and PrivateBank in particular, acknowledged that their internal Pre-Basel II mechanisms became much more professional and sophisticated due to Basel II and much more internally accepted within the bank. As a consequence, PrivateBank has realised 'that the rating assessments have become more and more similar between various institutes. LargeBank adds to this: '*prior to Basel II the assessment was more individualised, now it is more standardised via Bafin [German bank supervisory body]'*.

In general, the majority of interviewees believe that SME financing will become more difficult / dearer due to Basel II. However, some argue that the subprime crisis is a strong accelerator of this trend and '*Basel II is taken as an excuse*' as LargeBank states. According to SeedPE, young companies are especially affected by Basel II as '*they do not have an adequate rating history and no realisable securities'.* However, this view is not unitary: StateBank was directly involved in the Basel II definition refinement process regarding SMEs; therefore he is, in general, satisfied with the changes achieved. According to evaluations based on the biggest SME databases, Basel II should have a neutral effect on SME financing; taking the tailored SME securities into account it should be even cheaper. Therefore, he

believes that the different perception is due to a 'perception time lag': '*when the first Basel II draft was produced, nobody took care. After the first analyses were made, the SME associations and Chambers of Commerce became alert and stated that Basel II will be harmful for SMEs. This, however, took place when the first SME related modifications already took place. However, the perception that there is an SME package started slowly, only two to three years ago!*'

SavingsBank, the main provider of SME credits in Germany, adds: '*the differentiation of credit rates will be substantial which will not lead to increased margins at the end'*. Furthermore, he believes that credit rates do not play a prime role, but a dedicated bank relationship manager who cares, does. RestructuringPE goes one step further, he believes that: '*Basel II is taken as an appreciated excuse to withdraw from SME financing'* on an individual basis or on a broader scale. On the other hand, he argues that, in theory, shopping around should be reduced as the pricing decision depends on margin goals rather than personal assessment, therefore rating should lead to a greater standardisation of assessments.

However, InternationalPE doubts that private equity as an alternative to credit will become easier. New deals are dependent, to a certain extent, on external financing (LBOs): '*this will be more difficult as new credits, in general, will become more difficult due to Basel II*.' The dependency on banks is pointed out more directly by the ECIMS (2006). The importance of Basel II on private equity can be seen from the fact that banks are with 22.3% (together with pension funds with 22.6%) the biggest investors in private equity in Europe (based on data between 1999 and 2005).

Overall, there is a general view from the banking, rather than the non-banking, side that the negative view on Basel II is more about perception than reality; similar to the 'fairy tale' that the euro introduction led to higher prices. Some take Basel II to be an excuse if a credit is declined, although the reasons lie in the underlying company-specific economic factors.

6.5 QUALITATIVE ANALYSIS REGARDING HYPOTHESIS 1

As discussed in section 4.2.3, the first initial hypothesis is: 'corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating'. The qualitative analysis acknowledges this hypothesis, yet evidence is provided that the 'house bank principle' will not only deteriorate but it will become different: from a house bank principle towards a 'core bank' principle. That means that the importance of banks will deteriorate as sole providers of finance. However, Basel II will foster the trend that bank credits will be provided by only one core bank.

The qualitative analysis is grouped around the respective elements of the qualitative semi-structured interviews, with regards to hypothesis 1. The key findings – which will be evaluated, in detail by means of causal networks, in this section – are:

> The 'SME potential areas' are in general 'unconsciously private equity related' and a growing awareness, regarding controlling and finance, will foster the seeking of alternatives for bank credits.

> Regarding 'financing preferences', Basel II is a 'catalyst'. The financial crisis serves as an accelerator for changes in corporate finance preferences from a house bank principle towards a core bank principle (as banks are handing out state subsidies, too). SMEs are seeking alternatives and are well advised to do so.

> Evaluating the generic 'reasons of credit declines' the general opinion from financiers is that credits are still available. Yet, due to enhanced requirements of Basel II and the financial crisis, they are becoming more difficult to obtain. Communication and transparency are becoming highly important due to Basel II.

> Regarding 'financial performance and credit rates', SMEs, especially, believe in a reduction of credits to improve margins. On the other hand, financiers assume that the bargaining power of top rated SMEs increases.

6.5.1 Hypothesis 1: Company Potential Areas

In terms of potential areas nearly all interviewees found themselves reconfirmed in the view of the typical technical / market driven entrepreneur. This assessment has to change under the Basel II regime in order to stay sufficiently financed, which is partly under way.

The key findings in relation to the hypothesis 1 are:

- The focus regarding potential areas of SME entrepreneurs is strongly private equity affine.
- The growing focus on finance and controlling has a spill-over effect as dealing with internal finance will foster interest in potential financing alternatives to bank credit.

Figure 81 shows the causal network regarding ‘company potential areas’, by taking the author’s scientific realism philosophical stance into account. As discussed, the qualitative causalities (‘action’) from the ‘mechanism Basel II’ (‘controlled for the environment context of the financial crisis’) are illustrated with respect to the three hypotheses. The thickness of the arrow indicates the strength of the trigger, in the upper half of the figure. The green colour of an arrow, in the lower half, indicates that there is evidence for the respective hypothesis. In this case, the evidence regarding hypothesis 1 with respect to ‘company potential areas’. A red arrow (see following figures and excursus about Popperian methods and the concept of triangulation in section 4) indicates evidence for the alternative hypothesis, also listed below.

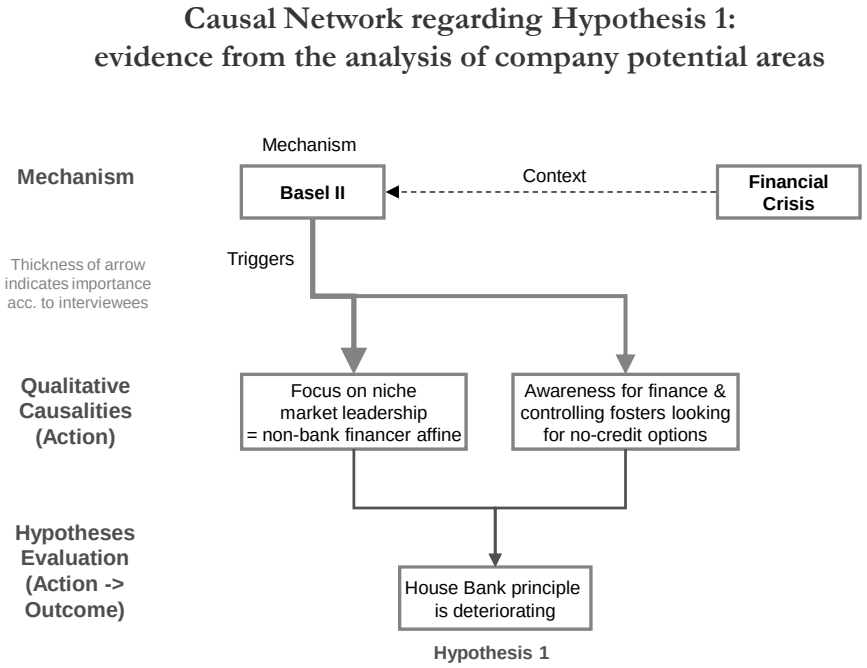

Figure 81 Causal network hypothesis 1 regarding 'company potential areas'

The comprehensive findings from the self-administered questionnaires are displayed in Table 39.

Potential areas	Current potential (1 to 4)	Future potential (1 to 4)	
Profitability (in rel. to sector avg.)	2.67	2.79	+ 4.4%
Financial situation (equity ratio. liqu. in rel. to sector avg.)	2.79	2.86	+ 2.4%
Management	3.02	3.02	+ 0%
Research & Development	2.05	2.46	+ 19.9%
Production & Logistics	2.56	2.77	+ 8.5%
Marketing & Sales	2.79	3.12	+ 11.8%
Controlling & Administration	2.83	2.82	- 0.1%

Table 39 Summary of the quantitative analysis regarding company potential areas

Potential of Niche Market Leadership (in line with non-bank investment criteria)

StatePE confirms the findings of the study and points out that the primary issue is to create a '*company-specific economic boom*'. SavingsBank and PrivateBank believe that the current decade is a special situation in the SME eco-system life cycle. The 'founder generation' built up the SMEs under difficult situations in the 1950s / 1960s and grew in the boom phases in the 1970s and 1980s. In the 1990s, these often saw the next generation take over and they have had to struggle in the current decade as the company had become complacent in the last 20 years. Therefore, there is a major backlog demand in terms of R&D and marketing, which is in line with the assessment of SmallSME. MicroSME points out that the high value of management reflects the essential role of the manager in SME environments. As SavingsBank puts it: '*one single failure can set the whole company at risk'*.

By comparing the answers of some interviewees, like StateBank or InternationalPE, regarding strategic SME focus and private equity financier criteria (findings from the quantitative analysis) it is possible to see a high alignment.

Awareness on Finance and Controlling Fosters Openness Regarding Financing Options

Many interviewees, such as SmallSME, point out that lack of control is still a weak point. For example, StateBank states: '*controlling is mere number crunching, but controlling is not used to drive an improvement process!*' On the other hand, SME interviewees stress the importance of strong control, especially ServicesSME: '*I regard controlling as very important, as I steer other areas by means of key performance indicators, these should be improved further'*.

MachinerySME makes an interesting point: banks make greater demands on financial information due to Basel II rating issues. This provokes SMEs to be more concerned with financial issues and this education fosters a stronger awareness regarding financing and bank-credit alternatives. RestructuringPE points out that a focus on cost (see section 6.6.2) is related to finance and control, as '*keeping costs in line, needs valid financial management'.*

6.5.2 Hypothesis 1: Corporate Financing Preferences of SMEs

In a comparison of 48 countries between 1995 and 1999 (Beck *et al*, 2008) Germany ranked in the middle (No. 28) in terms of bank financing with 16.84%, ranked second regarding equity with 23.13%, and third in the usage of subsidized credits. This assessment corresponds to the BDI SME panel (BDI, 2007). On a scale from 1 to 5, equity had the highest priority (3.68), followed by credit (2.57), leasing (2.46), subsidies (1.88), private equity (1.48) and mezzanine (1.35).

In general, the financiers believe that the assessment of the financial community regarding the questionnaires is more valid, especially with regard to the reduction in credit. They name the following reasons for the high dependency on bank credit for the decades prior to Basel II: high availability of cheap money (*'loans have been mispriced'* according to GermanPE or MezzanineBank, for example) and for tax reasons (CharteredAccountant or GermanPE, for example). The tax focus and 'identity' between company and owner is regarded by GermanPE as one of the prime reasons for a low capital market orientation – in combination with low interest rates.

However, Basel II is a catalyst for a sustainable change and openness regarding other forms of finance, as all interviewed SMEs and nearly all financiers stated: this is in line with a survey by Suhl and Weber (2005) amongst BVK members where 90% of the private equity financed companies regarded the influence of private equity companies to be '(very) important'

which goes beyond pure financing. Only 2.4% believe that the development would have been faster without private equity. Furthermore, portfolio companies stated, in the majority, that the cooperation with private equity stakeholders is better than with banks. Interestingly enough, the portfolio companies argued that the main know-how provided is achieved from dealing with banks. However, the results of the portfolio companies might be biased as these companies depend strongly on private equity financing. This hampers validity (Girden, 2001:4-5).

Yet, several studies regarding other forms of corporate financing like Gregory *et al* (2005) on SMEs in general, Nitschke and Kuper (2007) on private equity, Frey and Kuhn (2007) on IPOs, or BdB (2005) on Asset Backed Securities, for example, provide evidence that a variety of corporate financing options is only available for SMEs with revenues of more than, on average, 5 million euros.

The overall summary regarding hypothesis 1 with regard to 'corporate finance preference' is as follows:

- From 'house bank principle' to 'core bank principle':
  Basel II is a catalyst for change, however, the change will be accelerated by the current crisis. The focus is on reducing dependency. As banks have been the sole providers of finance for decades that means reducing bank credit and building up equity.
- SMEs are seeking alternatives and are well advised to do so. Alternative means of finance, private equity and strategic investors are therefore on the rise; this is regarded as a direct outflow of the Basel II catalysing effect and a new entrepreneur generation which is more open minded. However, they question whether the freedom of choice is apparent for all SMEs, or only the major ones.

> Furthermore, in the current financial crisis the German Federal Government allocated a lump sum of subsidised credits. These were transferred to the SMEs not directly, but via 'house banks' (BdB, 2005), which strengthened their position.

> On the other hand: the financial crisis led to an economic one (Strategic Direction, 2009) which leads to deteriorating earnings and cash flows for SMEs, which reduced their financing options outside their 'house banks'. As Weber and Darbellay (2008) point out: bank failures are associated with high social cost.

Figure 82 shows the causal network 'corporate finance preferences'.

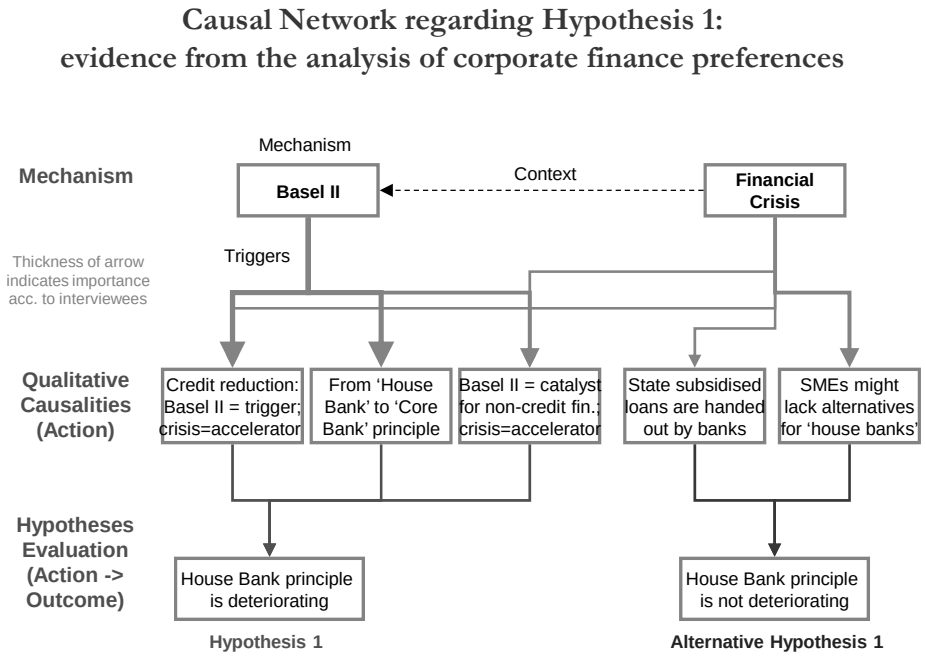

Figure 82 Causal network hypothesis 1 regarding 'corporate finance preferences'

The summarised findings from the questionnaire feedback can be found in Table 40. There seems to be a stronger substitutive demand for credit-financing. Whereas bank credits will decline, all assessments regarding the various other means of financing will increase. MezzanineBank and MicroSME regard this as an outflow of more alternatives available.

How do you assess the financing preferences of SMEs in the past (prior to Basel II, i.e. prior to 2007/2008) and in the future?

Usage of financing options:	SMEs Pre-Basel II	SMEs Post-Basel II		Financiers Pre-Basel II	Financiers Post-Basel II	
Retained earnings	3.19	3.47	8.8%	3.52	3.77	7.1%
Share holder (equ/loan)	2.53	2.54	0.4%	3.35	3.60	7.5%
Bank credit	3.00	2.95	-1.7%	3.84	3.52	-8.3%
SME subsidies	2.38	2.28	-4.2%	3.16	3.27	3.5%
Supplier credit	2.28	2.26	-0.9%	3.43	3.65	6.4%
Leasing	2.81	2.93	4.3%	3.26	3.44	5.5%
Factoring	1.41	1.59	12.8%	2.60	3.13	20.4%
Mezzanine	1.20	1.43	19.2%	2.32	2.63	13.4%
Securities (ABS)	1.13	1.13	0.0%	1.56	1.52	-2.6%
Private Equity	1.29	1.49	15.5%	2.29	2.79	21.8%
Strategic Investor	1.36	1.72	26.5%	2.21	2.59	17.2%
IPO (e. g. Entry Std.)	1.05	1.16	10.5%	1.92	1.84	-4.2%

Table 40 Summary of the quantitative analysis regarding the Pre- and Post-Basel II assessments by SMEs and financiers in terms of 'sources of finance'

It is not only the finance crisis which adds to increased demand for credit alternatives: MezzanineBank and StatePE point out that a high volume of 'underpriced' mezzanine has to be refinanced by SMEs.

Internal Financing

Several empirical research studies, like Deloitte & Touche (2007), regarding German SMEs, Ou and Haynes (2003) for the US, or Beck *et al* (2008) based on data from 48 countries, provide evidence that internal finance is the prime source of finance. Growth is funded primarily by retained earnings. Generating equity out of retained earnings or including shareholder loans from the sole owner of the company are regarded as the silver bullet by nearly all interviewees – especially in times of a crisis (SmallSME). It is the

cheapest method of financing, as MezzanineBank and SMEAssociation put it, and the one which makes an SME most independent (SmallSME, for example). Basel II is seen as the trigger which has been accelerated by the financial crisis. This is in line with Landskroner and Paroush (2008) who argue, based on a theoretical model with empirical evidence that exogenous shocks will result in more equity financing by corporations.

From 'House Bank' to 'Core Bank' Principle

The majority of interviewees, such as InternationalPE or SMEAssociation, do not believe that the house bank principle will completely cease to exist. However, it will change substantially. SMEAssociation and MezzanineBank, for example, believe that – initiated by Basel II – there will not only be one bank for all issues in the future, but one 'core bank' for a special means of financing. Due to regulatory issues and the financial crisis there is little possibility to transfer. In addition, banks have been trying to recover their relatively low margins with reference to Basel II, which had been low due to the high competition in the cheap-money era of the past. ServicesSME state: '*banks want to optimise margins; therefore they have no interest in providing good ratings nor passing the margins on'*. In total, this provides evidence for a reduction of the trusted house bank principle.

StateBank argues in a similar direction that some banks will intensify and expand their portfolio, whereas other specialised institutes will serve specialised needs. On the other hand, GermanPE makes a point that the relationship is bidirectional in times of the worldwide financial crisis. He states: '*it might be difficult to find a bank which will survive the crisis'*.

SmallSME regards the findings from the quantitative analyses that bank loans will be nearly unchanged and credit alternatives will be enhanced a confirmation that '*SMEs invest anti-cyclically, due to low interest rates*', contrary to large corporations.

Credits

Bank credits will remain the core element as SMEAssociation and MezzanineBank highlight. PrivateBank points out that, nowadays, SMEs even pay a commitment charge to secure currently unused credit lines. This was not questioned by any financier interviewed, despite a growing number of alternatives. The market is still not transparent enough for SMEs.

Regarding the reduction in credit, nearly all financiers believe that SMEs are too optimistic regarding the decline in credit. It will be much more dramatic, especially according to GermanPE. Covenants will become more important due to Basel II and the current crisis due to an increasing professionalism amongst bankers. As discussed already, MezzanineBank believes that there will be a shift from 'one house bank' to 'several core banks': '*nowadays, the tendency is that an entrepreneur is searching for core banks, nobody will be dependent, everybody is searching for a bank, in a specialist area, where the respective bank has the highest competence'*.

Furthermore, bank credits were not priced adequately prior to Basel II. There had not been a risk-adjusted pricing due to high competition between the banks (MezzanineBank) and the availability of cheap money (GermanPE). In order to provide an affordable mix in the future, banks will more proactively use state subsidised funds (StateBank). Regarding 'good SME clients', banks can offer this additional advantage to enhance customer loyalty (see 'house bank principle'). Regarding SMEs with an unfavourable rating, this could be the only way to offer credits in a reasonable way. He believes in a 'renaissance' of the house bank principle because shopping around between banks becomes laborious due to the rating effort. In parallel, some banks will broaden or deepen their offerings. On the other hand, specialised providers of financing will emerge.

This is a relatively new trend in relation to findings from Beck *et al* (2008). Smaller firms rely, in general, more strongly on internal finance, as the usage of funds from subsidy banks is lower than compared to bigger companies.

Only CharteredAccountant and MachinerySME point out that for SMEs the situation might improve. Banks are searching for well positioned SMEs because the financing volume is much smaller compared to the major corporations. Similarly SMEAssociation believes that the financing situation will deteriorate (if this is really the case) for very small and very big SMEs.

As a minority opinion, ServicesSME believes that the reduction is not only geared by the banks but by the SMEs too: '*SMEs had been disappointed by banks – therefore they felt offended and were seeking alternatives to bank credits, as a kind of counter action'*.

Private Equity

FamilyOffice distinguishes the role of private equity in relation to the shareholder base: '*there are two criteria for privately owned companies, it makes sense to clear up the balance sheet, the second is growth capital. Regarding publicly listed companies, it makes sense for companies with a high free float to search for an anchor investor'*. This sounds like the former 'house bank principle'. However, care has to be taken if the entrance of private equity is campaigned by a high leverage: all issues like restructuring can be done without a private equity investor. Therefore, an SME should carefully think about that option, in particular, it should not serve as an excuse for change.

StatePE points out that private equity is relatively young in Germany, but is growing well: '*when the private equity association* [BVK] *was founded we were 10 people in a room – now hundreds of people attend the meeting'*. SavingsBank traces this back to a greater openness, of the '*new entrepreneurial generation*', and the credit limits of banks per investments. Regarding the findings, he refers to the question of Basel II as 'cause and effect'. In the way that credit financing will become dearer due to the low equity ratio, private equity will be a natural remedy according to GermanPE.

The still relatively low values – in relation to other financing alternatives – for private equity and strategic investors is explained as follows (especially GermanPE): SMEs mix up the problems of some highly geared portfolio companies with private equity in general. Non leveraged SME-centric private equity is not as strongly affected as the large buy-out funds. On the other hand, banks like LargeBank and PrivateBank believe that a substitute effect is mere wishful thinking. Similarly, StateBank points out: '*what is for sure is that, with Basel II, stakes in companies became more expensive for banks'.* Basel II makes portfolio holdings for banks more expensive – this has implications on private equity as approximately 50% of all fund inflows came from the financial services industry in Germany in 2007 (BVK, 2008). Furthermore, he argues that the discussion on private equity has not always been objective. And the bank rationale that private equity investors will have to make additional payments in case of a liquidity gap, which makes a bank's investment more reliable, might not become true in all instances. If the company valuation is lower than the amount of credit the private equity firm will not step in. Given the decline in valuations since the beginning of the subprime crisis this is a major issue in geared investments, which is typical for transactions related to major companies. Buy-outs crashed from 82.8% of all investments in Germany to 10.9% one year later (BVK, 2009b).

MachinerySME, MicroSME and RestructuringPE believe that private equity is still the ultimate ratio for 'traditional old-economy SMEs' if banks refuse to grant credit. They believe that the relatively high increases in private equity / strategic investor values are induced by marketing and press rather than commonplace practice.

Strategic Investor

Furthermore, partly due to Basel II, several interviewees stressed the growing importance of strategic investors like Business Angels (regarding the seed / growth phase, as SeedPE believes), or 'strategic investors' (regarding

takeovers, as FamilyOffice and PrivateBank states). From the point of view of a strategic investor SeedPE believes in a revival. Entrepreneurs of larger corporations will not entrust their money to wealth management departments any longer due to the negative experience of the financial crisis: they will manage their family funds better on their own.

FamilyOffice and RestructuringPE point out that strategic investors are regarded as good guys with deep pockets (FamilyOffice). The latter is doubted by RestructuringPE who believes that it '*is a falsehood that strategic investors would not change structures as much as a financial investor would*'. The author adds that it seems as though German SMEs have a 'traditional aversion' towards strategic investors, as these consist, in the SME area, primarily of close competitors. CharteredAccountant and MezzanineBank point out that a strategic investor is not essentially a means of substitute, according to their experience, but is primarily an issue of succession planning. Primarily, strategic investors will be on the buy side (MezzanineBank) due to pricing issues. ServicesSME, for example, took over several smaller companies in order to provide marketing and sales capacity and strategic market guidance.

Alternative Forms of Finance

In general, some financiers, like InternationalPE or LargeBank, as well as SMEAssociation, estimate that alternative forms of finance serve as a substitute to tighter bank credit in times of a risk-based capital requirements approach. Hartl (2002), for example, refers to the issue that extensive leasing reduces credit options.

However, this might derive from a prior perception that audits regarding leasing and factoring are more lax. Yet, SmallSME, for example, believes that leasing requirements are still far lower than credit requirements.

Regarding mezzanine, it is necessary to distinguish between 'program mezzanine' and 'individual mezzanine'. Program Mezzanine has been priced

too cheaply, according to GermanPE, and will vanish completely. This makes it now difficult for SMEs to get follow-up financing (like individual mezzanine) at an affordable price. SMEAssociation adds to this that SMEs are not yet adjusted to mezzanine to a major extent. This is in line with Bruch (2008): the market for standard mezzanine collapsed completely and was replaced by individual mezzanine. According to the Mezzanine Report, the securitisation of mezzanine reached a record height of 1.4 billion euros in 2006, but then was reduced to 0.6 billion in 2007 and vanished completely in 2008. MezzanineBank, as well as StatePE, as providers of such a form of finance, believe that this can be regarded as a valid substituting alternative to private equity due to its equity equivalent function. This is in line with Brokamp *et al* (2004).

Regarding factoring, StatePE points out that this is an instrument which could be used as a one-shot measurement to gain liquidity after the financial crisis. It depends on the leverage structure. RestructuringPE traces back the strong increase in the growing acceptance of factoring: '*factoring is now becoming socially acceptable. It is similar to 'leasing' ten years ago, now leasing has reached a stable high level'*. LargeBank regards factoring as a clever alternative for entering new markets. For a short time, refinancing of factoring providers has been available again (PrivateBank).

SeedPE refers to special limitations for (leading edge) SMEs. He explained the case of a high-tech company stating that the leaser declined leasing of special machinery as it was not conventional, like 'machinery for window frames' is. He regards that as an outflow of a more restrictive banking approach. This is in line with FamilyOffice who regards factoring as being '*cumbersome and complicated'*.

StateBank believes in a return of ABS in the long run (stated currently by other interviewees as: ABS is 'dead'). The assessment of ABS corresponds to an earlier survey Steiner *et al* (2003).

According to GermanPE, '*the increase in IPOs is regarded as a hypothetical option'*. However, LargeBank points out that the level of alternative finance is

still low as the markets are still dominated by classic non-banks whereby '*banks to a certain extent try to enter the markets by providing mezzanine or by offering consulting on a fee basis. However, alternative means, like factoring and leasing, are still dominated by non-bank institutes'.*

6.5.3 Hypothesis 1: Reasons for The Decline of Bank Credits

The biggest mismatch in assessment between the interviews with SMEs and financiers is that SMEs believe much more that banks are withdrawing from SME financing in general, or from certain sectors, whereas financiers believe that is not the case and it is just a pretext (especially SavingsBank, PrivateBank and InternationalPE). SMEAssociation and SavingsBank state that special sectors are more under scrutiny than others, but there is no broad brush approach. Others, like LargeBank, believe that Basel II has a positive effect as it objectifies decision taking.

The key findings regarding hypothesis 1, in terms of 'reasons for credit decline' are:

- 'Credit crunch': credits are still available, yet, due to enhanced requirements of Basel II and the financial crisis they are becoming more difficult to obtain.
- The communication between banks and SMEs has to be improved, despite the year-long house bank principles. This is a two-way issue.
- There are deficiencies in transparency.
- Basel II fosters a mechanistic approach rather than an in-depth understanding.
- SMEs believe that major private banks have withdrawn more strongly from SME financing than savings banks and cooperative banks.

Figure 83 shows the causal network regarding 'reasons for declining bank credits' .

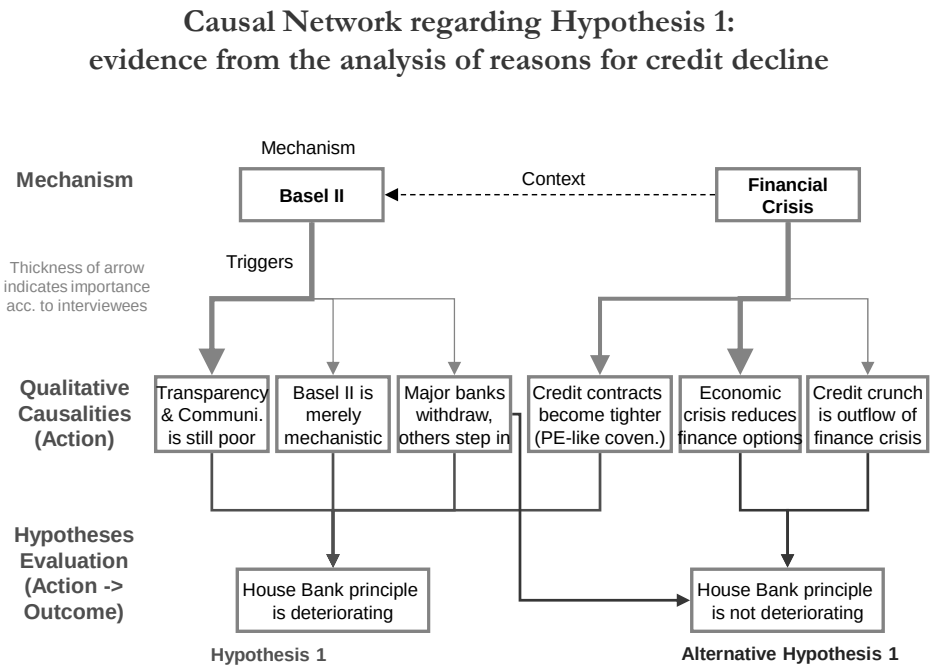

Figure 83 Causal network hypothesis 1 regarding 'reasons for rejecting bank credits'

The summarised findings from the quantitative survey are displayed in Table 41.

How do you assess the rejection criteria of bank credits regarding SMEs in the past (prior to Basel II, i. e. prior to 2007/8) and in the future (next two years)?

Rejection criteria bank credits:	SMEs	SMEs		Financiers	Financiers	
	Pre-Basel II	Post-Basel II		Pre-Basel II	Post-Basel II	
to SMEs in general	2.24	3.04	35.7%	2.07	2.54	22.7%
Poor sector outlook	2.68	3.47	29.5%	3.21	3.48	8.4%
Poor market position comp: to competitors	2.71	3.33	22.9%	3.33	3.63	9.0%
Profitability in the past	3.00	3.47	15.7%	3.12	3.30	5.8%
Financial situation in the past (equity ratio, liqu.)	3.12	3.75	20.2%	3.21	3.45	7.5%
Insufficient Securities / Liabilities	3.32	3.81	14.8%	2.67	2.82	5.6%
Unfavourable outlook (Rev., earnings, …)	3.25	3.79	16.6%	3.65	3.82	4.7%
Quality of management team	2.98	3.52	18.1%	3.56	3.77	5.9%
Differences in assess-ment of comp. Strategy	2.76	3.11	12.7%	2.98	3.28	10.1%
Personal friction betw. management a. banker	2.80	2.89	3.2%	2.86	2.91	1.7%

Table 41 Summary of the quantitative analysis regarding the Pre- and Post-Basel II assessments of SMEs and financiers regarding 'credit rejection criteria'

According to CharteredAccountant it is interesting that all the values go up, which provides evidence that credits will become dearer in general (due to Basel II and the financial crisis).

Generic versus Specific Reasons

In general, financiers, like RestructuringPE and SavingsBank, believe that SMEs make mistakes by believing that generic reasons like 'blacklisting of SMEs in general or with regard to specific sectors' are the primary ones. PrivateBank points out that the process of scrutiny is just more intense.

MezzanineBank, for example, believes that there will be a refocus by SMEs on valid business models and sound financial planning to get access to credit in times of Basel II. MicroSME differentiates according to size: '*the sector outlook plays a role regarding major SMEs. These are affected more than smaller SMEs, who find a niche somewhere'*. GermanPE comes to a similar conclusion, but from a different perspective: due to Basel II and the subprime crisis local banks will finance local business again, rather than SMEs abroad in order to gain market share. That means that German private banks will return to German SME financing. However, the question is whether all private banks will sooner or later become state banks. This is in line with StateBank's comments. However, there are diverging views: MachinerySME believes that major private banks have withdrawn more strongly from SME financing than savings banks and cooperative banks. SmallSME believes that '*certain sectors like gastronomy have been blacklisted due to Basel II*'.

SeedPE sees politics as being in the driving seat to '*change Basel II or to take away fears regarding the future of SMEs'*. He believes that enhancing state guarantees does not help as banks either want to finance a company or they do not. If so, they are looking for valid margins which will be diminished by state guarantees. MezzanineBank believes that in times of Basel II and the financial crisis it is '*a matter of securities which are still left to cover rating related issues'*. Therefore, the high significance of liquidity is recognised. Some financiers believe that the issue of securitisation is an outflow from pro-actively shaping the private wealth of the entrepreneur. However, as StateBank points out, the SME package of Basel II offers new options which are yet not widely known by all participants. InternationalPE ascribes this to the growing importance of securities in the financial crisis.

On the contrary, PrivateBank and SavingsBank believe that the issue of securities is overvalued by SMEs. Valid SMEs with a good rating do not need securities, or only need them to lower the regulatory capital in order to get lower rates. On the other hand, if the rating indicates that the SME is not in a

good position, securities do not help. Furthermore, SMEs are still not aware that only realisable secessions are viable for a bank. SmallSME questions this: '*banks are not co-entrepreneurs and therefore securitisation is key for a bank'.*

Interestingly enough, GermanPE sees a link between private equity and access to credit. Private equity firms are professionally managed in terms of focusing on increasing company valuation rather than being technology driven (regardless of the market) or focused on saving employment. This enables a better management of resources.

SmallSME believes that Basel II fosters better planning ('*Basel II planning requirements are a business plan light'*) and acknowledges that '*prior to Basel II it was easier to fool the banker which becomes now more difficult*'.

Indirect Effect of Basel II Regulation

Due to Basel II (fostered by the financial crisis) covenants in credit contracts have become close to private equity contracts (MezzanineBank). Furthermore, Basel II forces banks to increase their regulatory capital in terms of SME credits in general, according to his opinion.

FamilyOffice goes even further as he doubts that banks have the right instruments for assessing SMEs: '*banks do not have a broad understanding for companies. I know a current case where a bank granted a million euro credit on the verge of a default. The problem is a mechanistic procedure, combined with a pressure to achieve super returns'*. On the other hand, future world market leaders might not get credit in the early growth phase at all. Or, savings bank directors which are closely linked to political decision makers in municipalities often adjust their decisions politically. He argues that banks, in general, lack the in-depth understanding of an SME business. On the other hand, he believes that banks will come back to the playing field – not because of a growing understanding, but for profit reasons. In the past,

SME financing was not profitable enough due to 'fabricated' higher profits, such as with subprime credits. This is in line with SmallSME who points out that SMEs are regarded as less risky nowadays. In summary, the combination of Basel II as a 'mechanistic approach' (in line with SeedPE or SmallSME who points out '*prior to Basel II, I had direct discussion with the Board of Directors which ceased ... they seem now to be consumed internally with reporting*'), the 'quest for super-returns' and 'political interference at savings banks' is harmful in terms of SME financing in general.

Communication and Transparency

One of the most interesting findings from the interviews, according to the author, is that financiers unequivocally state bi-directional communication problems between SMEs and banks as one of the biggest obstacles to credit financing. This is astonishing as the house bank principle has been active for decades. RestructuringPE believes that for SMEs rating is just an '*abstract construct*'. Banks sell ratings as a 'Black-box' as SMEAssociation puts it: '*if I am a banker and the rating is too bad, then I am in a meeting of 3 to 4 hours, after which I do not have anything at all. There are examples: if you want additional information you have to pay'.* FamilyOffice believes that banks have to learn to know their SME clients better; the rating based approach is not a valid judgement instrument. On the other hand, PrivateBank assumes that '*it is nearly impossible to explain to a self-confident entrepreneur that his company does not meet the requirements of the banking (rating) criteria'.*

6.5.4 Hypothesis 1: Financial Performance and Cost of Finance

The quantitative analysis (see section 5) provides evidence that SMEs would enhance earnings and equity ratios in the future and would reduce the usage of current accounts. However, SMEs believe that credit rates will rise for them and the rate of credit declines will increase. The interviews agree with

this, but believe the reasons have to be found outside Basel II. Chartered-Accountant goes even one step further: the question with rating under the Basel II regime is not only if credits will become dearer, but getting a credit at all. On the other hand, the interviewed bankers argued that Basel II provides a chance to improve credit rates. The key findings related to hypothesis 1 with regards to 'financial performance and credit rate development' are:

> Due to the risk-agnostic Basel I paradigm and the 'affluence of cheap money' in recent years, Basel II is the trigger with which to improve margins in the SME area. This is in line with the majority of, but not all, interviewees.

> Due to shortage of money in times of the banking crisis, credits are sanctioned.

> Basel II is the chance for valid SMEs to lower their credit rates; the bargaining power of the top-rated SMEs fuels banking competition.

Figure 84 shows the causal network regarding 'financial performance'.

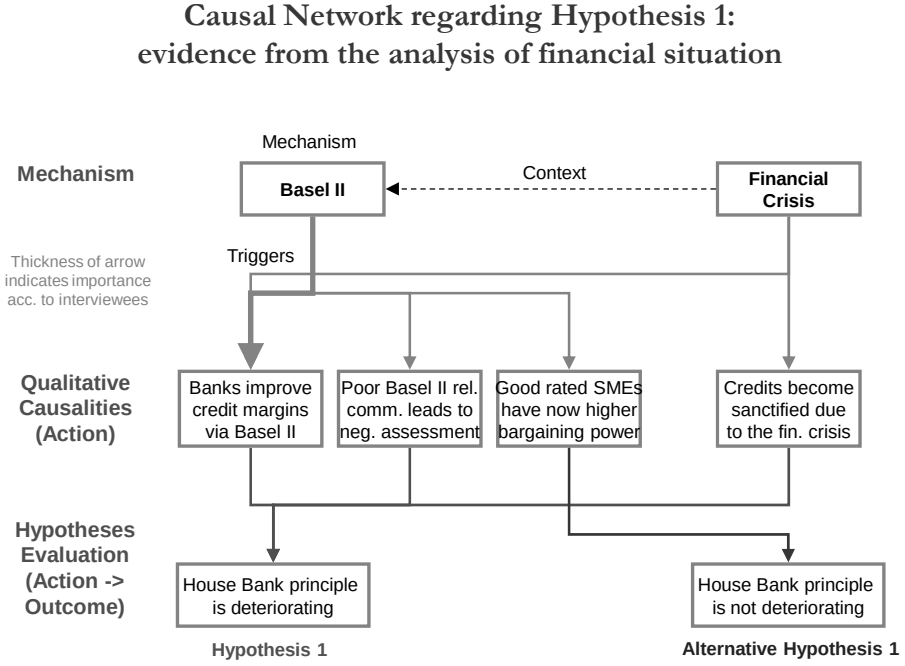

Figure 84 Causal network hypothesis 1 regarding 'financial performance'

LargeBank points out that the fear of higher credit rates, despite the positive assessment in terms of EBIT and equity development (see Table 42, summary of the quantitative survey), is '*typical German pessimism*'.

		The Pre-Basel II value was …	The Post-Basel II value will prob. be …
	Current value	**1 = lower, 2 = equal, 3 = higher**	**1 = lower, 2 = equal, 3 = higher**
No. of employees finance department	2.9 Persons	1.94	2.21
No. of phone calls with bank manager p. year	14.8 times p. a.	1.96	2.00
No. of meetings with bank manager p. year	3.2 times p. a.	1.94	2.08
EBIT ratio (Pre-tax Profit / revenue)	6.6%	1.75	2.29
Equity ratio	37.9%	1.94	2.38
Height overdraft (in % of revenue)	5.8%	2.11	1.82
Development of credit rates		2.15	2.27
No. of credit application rejections	____ times	1.83	2.04

Table 42 Summary of the quantitative analysis regarding the assessment of financial performance (Pre- and Post-Basel II)

Basel II = Credit Rates Up – Bank Margins Up?

All interviewees unequivocally (even SMEs) believe that credit rates will rise as they have been historically low prior to Basel II, especially fostered by the US central bank policy. The enhanced transparency of Basel II enables banks to use the additional information creation options to go back to risk-based pricing in a less competitive environment. In addition, the abolition of state guarantees of savings banks in Germany in 2005 (Monti, 2003), and the problems of the state-owned SME bank IKB (Hall, 2008), enable non-public

banks to become competitive again. The combined factors lead to the effect that for one of the biggest banks (LargeBank) the SME business became the biggest in volume within a few years, providing the highest margins. Therefore, the risk based capital allocation approach enables banks, according to LargeBank, SmallSME and MicroSME, to improve margins. Under the rating regime the granting of credits has become more objective. In addition, banks lost money in investment banking (structured products) and want to recover the margin base at the expense of the SMEs who have less financing alternatives. Yet, StateBank believes that the assessment of rising interest is still derived from the 'perception gap' (of the early Basel II version). According to several studies, Barfield (2004b), for example, the high competition in Germany will not allow for increasing margins. GermanPE therefore advises SMEs to '*actively manage the passive side of the balance sheet'.*

In addition, PrivateBank and SavingsBank believe that the bargaining power of good SMEs will improve, as only a portion of the high-margin 'bad SMEs' will survive. The competition to get the good one will result in lower credit rates and lower margins. Furthermore, it has become more difficult for banks to refinance themselves due to the subprime crisis. In particular, the surplus in the two to three year range is substantial. This is the prime reason why banks do not provide ratings of very good SMEs voluntarily, according to PrivateBank. This correlates with Valverde and Fernández (2007), who write about a 'paradoxical coexistence' derived from a literature review and their own models. By widening the portfolio to non-credit financial services the following can be observed: 'decreasing interest margins and increasing market power in European banking sectors'. This is in line with the German Banking Association (BdB, 2009) who argues that due to the financial crisis margins have come under pressure. However, from a LBO perspective, InternationalPE experienced a slight decrease in credit rates as margins have increased by more than 50% (from 2.5 to 4.0 base points – at the same time the Euribor declined at an even greater rate, from 4.0 to 1.4.

Communication Issues

Again, the communication issue is regarded as one of the prime reasons for problems in the banking relationship. CharteredAccountant believes that '*SMEs only talk to their bank when credit is needed'*. This is not the right strategy for lowering their credit rates, as the positive MachinerySME example shows.

6.6 QUALITATIVE ANALYSIS REGARDING HYPOTHESIS 2.A

As discussed in section 4.2.3, the first part of the second initial hypothesis is: 'SMEs can cope best with the effect when they proactively engage in rating and improve the parameters'. The qualitative analysis is grouped around the respective elements of the qualitative semi-structured interviews, with regards to hypothesis 2.a. The key findings – which will be evaluated in detail by means of causal networks in this section – are:

Company strategy

- Relating 'company strategy focus', Basel II serves as a trigger. The financial crisis is regarded as an accelerator towards a stronger focus on finance and controlling, and therefore on rating. However, in the times of the financial crisis 'cash is king' in relation to longer term rating issues.
- Transparency by better communication is a key 'potential area', as is a focus on finance and controlling which leads to a better rating. However, a focus on finance is still regarded as a defensive strategy for SMEs.
- With regards to 'rating issues', the focus on finance improves the rating parameter which leads to an educational effect. Rating is not a means in itself as it improves business parameters as well. However, banks are partly not willing to pro-actively engage in rating discussion with SMEs.

6.6.1 Hypothesis 2.a: Company Strategy focus

In terms of strategy, a growing focus on cost and liquidity is not surprising due to the 'change management imposed by Basel II' given the current financial crisis. StatePE points out that in former times different sectors were affected differently. Now, no sector is omitted. Therefore, for example, automotive OEMs proactively pay their suppliers upfront to keep them from falling into bankruptcy.

The key findings referring hypothesis 2.a, in terms of 'company strategy focus' are:

> Basel II is a trigger, the financial crisis an accelerator regarding a stronger focus on finance and controlling and therefore on rating.

> The financial crisis exerts an influence on company strategy especially in terms of a short-term focus on liquidity management.

Figure 85 illustrates the causal network regarding 'company strategy focus'.

Causal Network regarding Hypothesis 2.a:
evidence derived from the analysis of company strategy

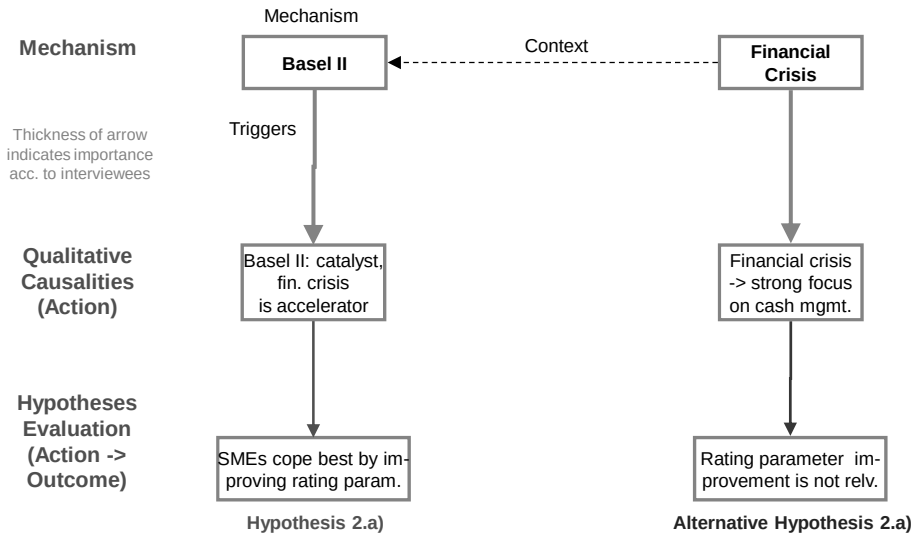

Figure 85 Causal network hypothesis 2.a regarding 'company strategy'

The comprehensive findings from the self-administered questionnaires are displayed in Table 43.

Focus on …	SME Pre-Basel II	SME Post-Basel II	
… financial stability / liquidity	3.25	3.78	+ 16.2%
… increasing profitability	3.37	3.49	+ 3.5%
… enhancing market position	3.08	3.28	+ 6.2%
… quality excellence	3.25	3.32	+ 2.6%
… technology excellence	3.05	3.08	+ 1.1%
… cost excellence	3.34	3.54	+ 6.1%
… increasing company valuation	2.75	3.12	+ 13.6%

Table 43 Summary of the quantitative analysis regarding company focus (Pre- and Post-Basel II)

‘Basel II as catalyst, financial crisis as accelerator’

Many interviewees stated that Basel II has a catalyst function with the financial crisis as a trigger – especially with regards to keep an eye on liquidity management rather than financial engineering. Especially, financiers reflect to the relatively low importance of the financial strategic elements: this can be derived from the fact that issues like R&D are more ‘*measurable*’ (MicroSME). SmallSME partially traces this back to the ‘*work overload*’ of a typical entrepreneur. A focus on cost relates, according to MachinerySME, to the dedication and the mutual dependency between company and entrepreneur, which is normally the owner. Therefore, keeping costs in line is essential regarding safeguarding company assets, especially by keeping fixed costs low, as SmallSME or PrivateBank point out. On the other hand a focus on cost implies a stronger impact of finance and controlling and therefore on improving rating parameters as, for example, PrivateBank points out. Therefore nearly all interviewees believe that the focus on finance & controlling and therefore on rating will rise due to Basel II.

Cash is king

Especially banks like SavingsBank or StateBank stress the importance of liquidity in business terms too. Due to the financial crisis watching and improving liquidity is more important in the short term due to the financial crisis in relation to a long term improvement of rating parameters.

6.6.2 Hypothesis 2.a: Company Potential Areas

In terms of potential areas nearly all interviewees found themselves reconfirmed in the view of the typical technical / market driven entrepreneur. This assessment has to change under the Basel II regime in order to stay sufficiently financed, which is partly under way.

Relating to hypothesis 2.a, the key findings in terms of ‘company potential areas’ are:

- Financial communication and an enhanced transparency are the key areas of improvement under the Basel II regime.
- Cognitive dissonance: a focus on finance would be a defensive strategy. SMEs still underestimate the value of finance and controlling as a ‘navigator function’ in terms of Basel II, but in terms of business as well.
- On the other hand, several interviewees believe that controlling & finance is on the rise due to Basel II – with a positive effect on rating.

Figure 86 illustrates the causal network regarding ‘company potential areas’.

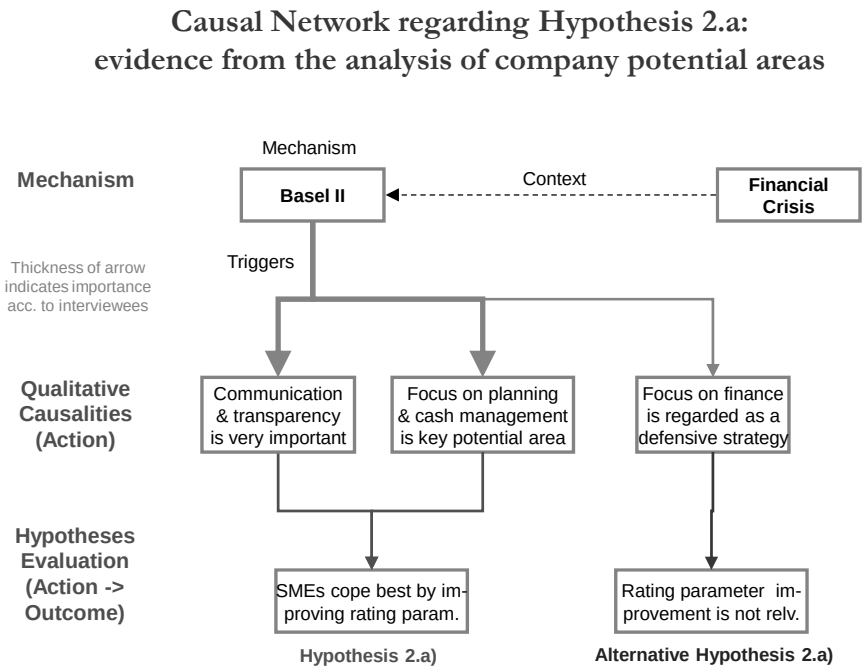

Figure 86 Causal network hypothesis 2.a regarding 'company potential areas'

The comprehensive findings from the self-administered questionnaires are displayed in Table 44.

Potential areas	Pre-Basel II potential (1 to 4)	Post-Basel II potential (1 to 4)	
Profitability (in rel. to sector avg.)	2.67	2.79	+ 4.4%
Financial situation (equity ratio. liqu. in rel. to sector avg.)	2.79	2.86	+ 2.4%
Management	3.02	3.02	+ 0%
Research & Development	2.05	2.46	+ 19.9%
Production & Logistics	2.56	2.77	+ 8.5%
Marketing & Sales	2.79	3.12	+ 11.8%
Controlling & Administration	2.83	2.82	- 0.1%

Table 44 Summary of the quantitative analysis regarding company potential areas (Pre- and Post-Basel II assessment)

Potential of Finance and Controlling

In general, all financiers in unison quote that the highest potential is still in finance and controlling: from mere number crunching to planning and forecasting (SavingsBank, for example).

CharteredAccountant differentiates between SMEs: major, professional managed SMEs have already set-up a valid controlling and reporting line. However, patriarchal organised family businesses are still primarily technology driven, with administration issues (like finance) ranking low on the executive agenda. This is in line with SavingsBank who refers to the important role of chartered accountants in terms of supporting the entrepreneur with planning as '*only few SMEs are able to evaluate liquidity demands*'. Therefore, the importance is often not yet common sense. MachinerySME endorses this by claiming that many SMEs have not yet recognised the importance, SavingsBank believes in the next generation entrepreneurs.

RestructuringPE goes one step further by pointing out: '*adhering to employees or year-long suppliers belongs to the entrepreneurial freedom, even if it could not be justified by economic reasons. This means that they set targets against which controlling measures of success are adjusted. However, if the measures are the wrong ones, the assessment can only be wrong too. Therefore, controlling could easily acknowledge these wrong targets as these are arbitrarily and not benchmark-based'*. SMEAssociation focuses on the linkage to costs too: '*a valid controlling is needed, in order to keep cost under control: controlling has a navigator function!*'

Potential of Transparency

Due to Basel II, SMEs have begun to understand the importance of 'capital markets communication' even as a PHB. The usage of cheap mezzanine in the past, as a reaction to rating related credit reductions, was a good exercise.

CharteredAccountant argues that especially major SMEs *'learned to play the game'* and optimise the quantity and quality of communication in order to enhance transparency. The majority of interviewees stated that a combined focus on growth and on transparency is the silver bullet as it helps the corporation to make the right investment decisions.

Controlling as 'Defensive Strategy'

On the other hand, InternationalPE, for example, argues that control is rightly not of such a high importance if the SME is entrepreneurially owned: entrepreneurs typically focus on niche markets and have, in this area, viable growth options – therefore order intake is essential due to positive contribution margins rather than costs. Fluctuating earnings are not so important – contrary to private equity owned SMEs with their covenants. Yet, he acknowledges, in non-growth environments, the importance of financial management in order to comply with Basel II.

Similarly, GermanPE and ServicesSME regard the focus on R&D and marketing as a typical 'entrepreneurial answer'. Controlling is regarded as a defensive strategy. LargeBank adds to this by pointing out that '*controlling does not make business go round. If only controlling would have reigned, various good ideas would not have hit the market'.* PrivateBank relates this to the strong self-confidence of the entrepreneur in terms of business decisions which does not need sophisticated control. This is in line with ServicesSME who regards administration as profligacy.

6.6.3 Hypothesis 2.a: Rating Issues

Whereas rating was a major issue three to five years ago it has now become commonplace according to several interviewees. Interestingly enough, the majority of SMEs state that ratings have induced more positive than negative

effects in terms of business professionalism and strength. The key findings relating to hypothesis 2.a, with regards to ‘rating issues’ are:

> Explaining a Basel II rating is partly avoided by banks because it is too time-consuming and very complex to explain, or it will strengthen the bargaining position of the SME in terms of getting better ratings.

> On the other hand, SMEs lack interest in rating as it is a ‘mere number’ for them. They either underestimate its importance or have ‘learned to play the game’.

> Therefore, many SMEs and financiers state that the importance of rating is still undervalued. The silver bullet for SMEs is to use rating criteria as strategic management tools, especially in terms of planning (liquidity forecast etc.), rather than backward oriented controlling. Banks should regard the time for explaining a rating as an investment in a stabilised banking relationship.

Figure 87 provides the graphical illustration of the causal network regarding ‘rating’.

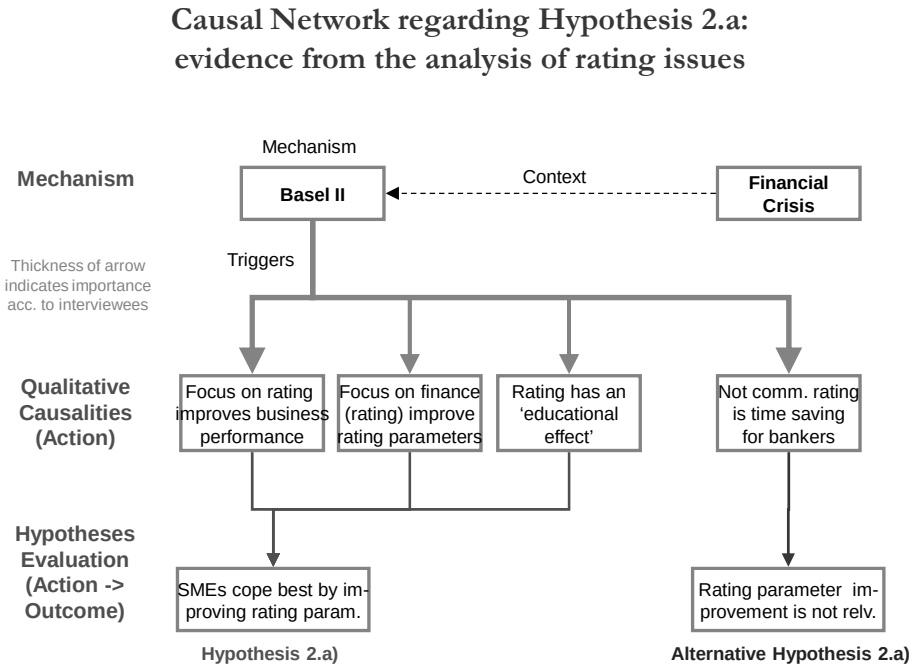

Figure 87 Causal network hypothesis 2.a regarding ‘rating issues’

Interestingly enough only 28.6% of all SMEs who participated in the self-administered questionnaire stated that they knew their rating value, 52.3% did not know, 19.1% stated not to be rated and the rest did not answer. This is a slight improvement in relation to a KfW survey from 2007 where 25% said they had no rating at all (Zimmermann, 2007). A summary of the quantitative survey is displayed in Table 45.

		The Pre-Basel II value was …	**The Post-Basel II value will prob. be …**
	Current value	**1 = lower, 2 = equal, 3 = higher**	**1 = lower, 2 = equal, 3 = higher**
Rating value	28.6% know rating 52.3% not known 19.1% not rated	1.77	2.3

Table 45 Summary of the quantitative analysis regarding the assessment of financial performance (Pre- and Post-Basel II)

Is Rating Already Common Place?

Some interviewees, such as MicroSME, LargeBank and ServicesSME state that rating had been a major issue prior to the official inception of Basel II. Now SMEs are used to it – or have even learned to play the game, as MicroSME points out. Within banks too, a learning curve took place over the last couple of years, as LargeBank argues. SMEs are well advised to coordinate the acceptance of external ratings upfront in order to avoid disappointment, as only a few agencies are accepted (PrivateBank).

Yet, banks like SavingsBank differentiate between an intense rating and a kind of scoring based on account history. However, every SME gets its value communicated. Despite this, LargeBank points out that '*intelligent SMEs know that rating is not a means to an end – if a higher stock makes sense in*

terms of serving customers better, an SME would not refrain from having this for the sake of a slightly better rating'.

Reluctance Regarding Ratings

StateBank and SmallSME argue that there is still a strong demand for increased communication on rating from the state and the banking side. For example, StateBank points out: '*especially regarding securities, communication is needed by banks on how SMEs can improve terms and conditions by means of securities'*. This is essential in order to make ratings of various institutes more comparable. LargeBank believes that SMEs are mainly interested in rating if a credit has been declined. Otherwise they do not care so much, which is a mistake. SmallSME believes that SMEs do not want to know as they fear they will be disappointed. Furthermore, ratings are regarded as arbitrary as there are no possibilities to alter them with discussion: '*there is still a huge demand in terms of Basel II understanding. Transparency by banks regarding rating is by far not sufficient'*.

Reflecting on the fact that more than 67.8% of the SMEs under review did not know their rating, or had not been rated the explanation was unequivocal. Banks do not want to be '*bearers of bad news*' as LargeBank points out and therefore have no interest in communicating the ratings, as CharteredAccountant puts it. In particular, good SMEs – who underestimated the importance of ratings for so long (GermanPE) – are very disappointed about their relatively poor rating results compared to the big transnational companies. This is a pity as '*SMEs will benefit more from the rating process than banks do'*. GermanPE said it is very convenient to sell ratings to SMEs as a 'black box'. This is in line with Tegelkamp and Dartsch (2007). A valid rating discussion takes about two to three hours (SavingsBank). On the other hand, PrivateBank experiences ratings to be a starting point for a structured and cooperative discussion.

Missing Focus on Planning

MachinerySME argues that '*SME entrepreneurs do not pay enough attention to the commercial part of the business'*. Therefore Basel II is positive as it has an *'educational effect'* for SMEs. PrivateBank argues that there are still major deficiencies in terms of planning; SavingsBank believes that a good chartered accountant can help out as smaller SMEs lack the knowledge.

6.7 QUALITATIVE ANALYSIS REGARDING HYPOTHESIS 2.B AND 3

The initial hypotheses 2.b and 3 (section 4.2.3): 'financiers (especially non-bank investors) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies' is acknowledged to a great extent by the qualitative analysis. In addition, the qualitative analysis provides evidence that a sound financial basis / management is of more and more importance.

The qualitative analysis is grouped around the respective elements of the qualitative semi-structured interviews, with regards to hypotheses 2.b and 3. The key findings –which will be evaluated in detail by means of causal networks in this section – are:

- The 'company strategy focus' is unconsciously private equity affine and the focus on valuation is an indicator regarding a growing openness towards non-bank financiers.
- In terms of 'investment criteria', the interviewees acknowledged the high alignment between SMEs and non-bank financiers with a focus on leadership within a niche-market rather than financial ratio optimisation. Yet, on a short term basis, financial stability becomes important due to a growing risk awareness of non-bank financiers because of the financial crisis.

6.7.1 Hypotheses 2.b and 3: Company Strategy focus

The qualitative analysis provides evidence regarding a stronger affinity towards non-bank financing. The key findings referring hypotheses 2.b and 3 in terms of 'company strategy focus' are:

> The SME entrepreneurial strategy is unconsciously private equity affine.

> The focus on valuation is an indicator regarding a growing openness towards non-bank financiers.

Figure 88 shows the causal network regarding 'company strategy focus'.

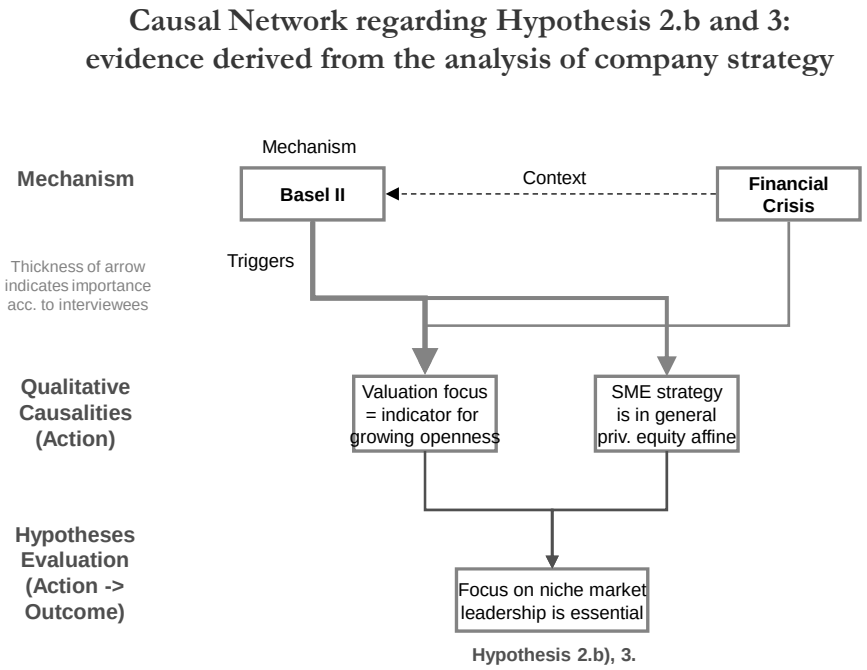

Figure 88 Causal network hypotheses 2.b and 3 regarding 'company strategy'

The comprehensive findings from the self-administered questionnaires are displayed in Table 46.

Focus on …	SME Pre-Basel II	SME Post-Basel II	
… financial stability / liquidity	3.25	3.78	+ 16.2%
… increasing profitability	3.37	3.49	+ 3.5%
… enhancing market position	3.08	3.28	+ 6.2%
… quality excellence	3.25	3.32	+ 2.6%
… technology excellence	3.05	3.08	+ 1.1%
… cost excellence	3.34	3.54	+ 6.1%
… increasing company valuation	2.75	3.12	+ 13.6%

Table 46 Summary of the quantitative analysis regarding company focus (Pre- and Post-Basel II)

Company Strategy is Unconsciously Private Equity affine

FamilyOffice points out that strategy is the most decisive element: SMEs have to blame themselves when they put their focus on tax optimising models rather than, for example, trying to reduce their dependence on bank loans or special sectors, like automotive on time. If SMEs do their homework (on technology, cost and market leadership) in terms of business strategy, rather than financial engineering, they will cope better with Basel II and the economic crisis. Nearly all interviewees stated that issues like a top positioning in an attractive niche market are intrinsic strategies for an entrepreneur which is ‘unconsciously’ private equity affine.

Company Valuation Should Not be a Means in Itself

Regarding the high increase in the importance of company valuation, interviewees such as StatePE, ServicesSME, PrivateBank and InternationalPE, argue that this an issue primarily prior to a sell off – currently fuelled by the

low valuations due to the crisis. Yet, the majority state that this is a sign for a stronger openness of SMEs with regard to non-bank corporate financing. GermanPE regards company valuation as a residual value which can be derived from the other ones. However, he states, as will be explained below (see section 6.5.3), that it is crucial in getting additional finance in times when credit financing is believed to have become more difficult due to Basel II. If the company valuation falls below the amount of credit, a further investment in such a situation is not possible for a private equity company. This is in line with MachinerySME. In addition, LargeBank and SmallSME point out that the valuation focus is important as it shows that entrepreneurs orient their actions more on value creation and therefore on enhancing company valuation.

6.7.2 Hypotheses 2.b and 3: Investment Criteria of Non-Bank Financiers

The assessment of SMEs and private equity is highly correlated, in terms of their assessment, which indicates that both sides come close to each other. MicroSME traces this back to the entrepreneurial spirit of non-bank financiers as this is close to entrepreneurs and is contrary to a potentially risk-averse banker's approach. Regarding hypotheses 2.b and 3 the key findings with respect to the criteria of non-bank financiers are:

- The findings from the quantitative study regarding niche market leadership are acknowledged by the vast majority of interviewees. This confirms the findings from the quantitative analysis (see section 5) that the assessment regarding non-bank criteria are more aligned between SMEs and financiers compared to credit rejection criteria.
- The current importance of financial stability is a combined effect of Basel II and the financial crisis. Private equity is becoming more risk averse due to limited refinancing options. SMEs have learned how essential financial stability is in order to have freedom of choice.

> Private equity fosters soft facts and market related issues. This is partly in contrast to the perception of the bankers' approach which stresses the importance of balance sheet related 'hard facts' under the Basel II regime.

Figure 89 shows the causal network regarding 'investment criteria of non-bank financiers'.

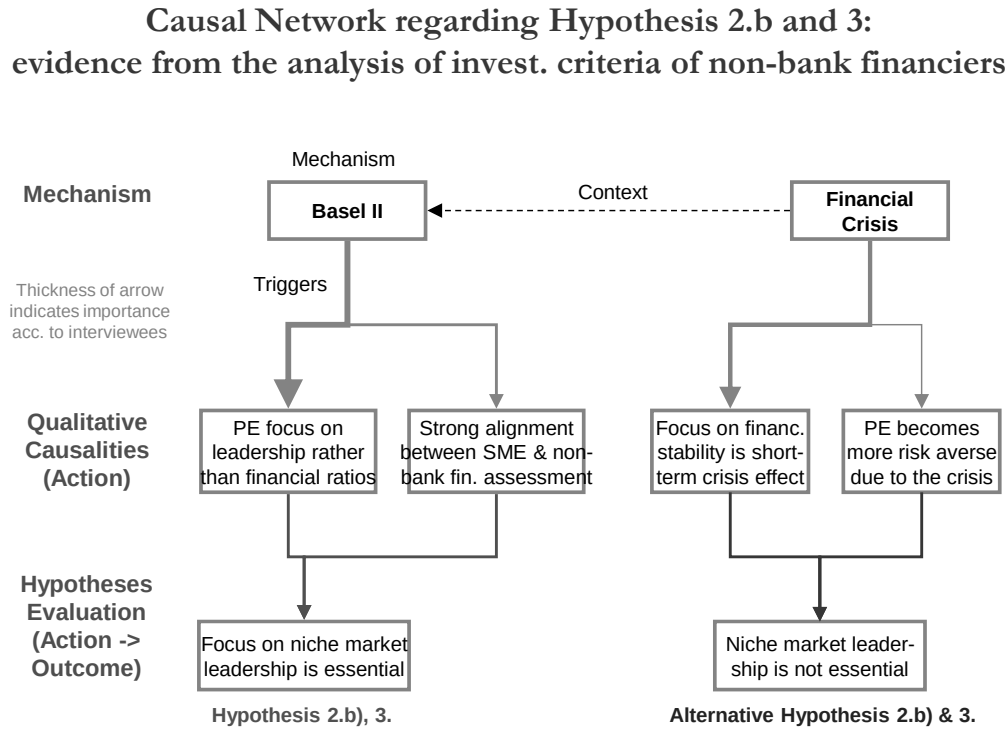

Figure 89 Causal network hypotheses 2.b and 3 regarding 'investment criteria of non-bank financiers'

The interviewees largely acknowledge the findings from the quantitative analysis. Yet, FamilyOffice believes that private equity has no strategic approach, but that it is '*solely cash-flow and deal structure driven – focusing on the bonus*'. Quoting Warren Buffet who said, the devil is out of the box and no one can put him back'.

The summarised findings from the quantitative survey is shown in Table 47.

How do you assess the importance of the following investment criteria regarding your financing / investment decisions in the past (prior to Basel II, i. e. prior to 2007/8) and in the future (next two years)?

Investment criteria of non-bank financier	SMEs	SMEs		Finan-ciers	Finan-ciers	
	Pre-Basel II	Post-Basel II		Pre-Basel II	Post-Basel II	
Financial stability in the past (Equity ratio, liqui.)	2.87	3.32	15.7%	3.29	3.49	6.1%
Good market position	3.19	3.47	8.8%	3.58	3.76	5.0%
Leading edge prod./technology	3.33	3.53	6.0%	3.47	3.63	4.6%
Good comparative cost position in rel. to comp.	3.02	3.21	6.3%	3.16	3.34	5.7%
Ambitious management regard. comp. valuation	3.17	3.45	8.8%	3.17	3.26	2.8%
Strong financial management	2.96	3.40	14.9%	3.15	3.46	9.8%
Future growth options	3.35	3.47	3.6%	3.68	3.85	4.6%
Willingness to incorporate new investors with respective rights	2.36	2.52	6.8%	2.75	3.07	11.6%

Table 47 Summary of the quantitative analysis regarding the assessment of investment-criteria of non-bank financiers (Pre- and Post-Basel II) by SMEs and financiers

Correlation of Assessment

The assessment of the various investment criteria as well as the trend from Pre- to Post-Basel II is highly correlated. Interviewees like InternationalPE, ServicesSME, LargeBank, SmallSME and StateBank believe that thriving for growth and a valid market position as well as a sound technology basis, are the key criteria. They are all based on strong management. Nearly every interviewee detected the strong correlation between the assessments of SMEs and financiers. MicroSME believes that the strong correlation is because '*non-bank financiers act more like entrepreneurs themselves, in comparison to risk-avoiding bankers*'.

The stronger related SME and financier values in terms of investment criteria of non-bank financiers (derived from the questionnaires) are shown in Figure 90. Figure 91 illustrates the somewhat vastly diverging views of SMEs and financiers regarding the importance of credit rejection criteria.

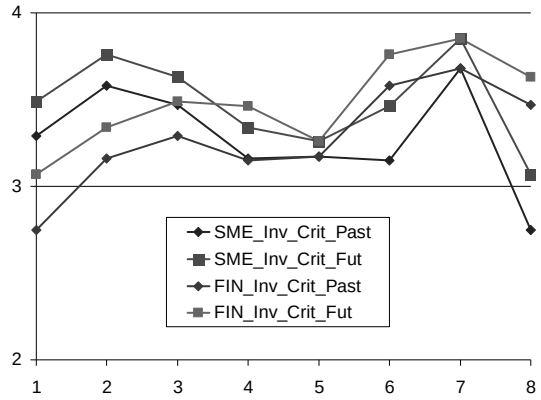

Figure 90 Pre- and Post-Basel II assessment of investment criteria by SMEs and financiers

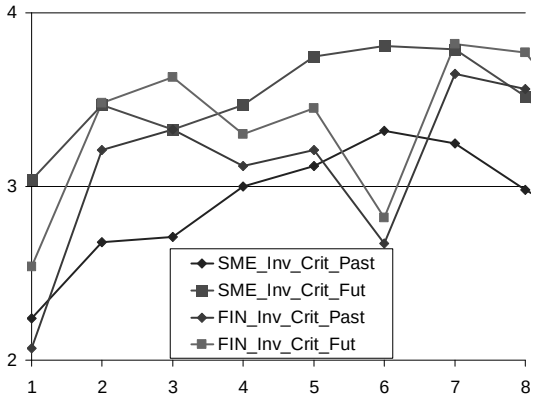

Figure 91 Pre- and Post-Basel II assessment of credit rejection criteria by SMEs and financiers

MezzanineBank believes that the high correlation can be explained by the different aims of banks, private equity and SME managers: '*entrepreneurs and private equity managers are both company valuation driven; whereas, the bank manager is cash-flow oriented, as it is most important for banks to know how the credit can be paid back'*. In contrast, non-bank financiers have only the exit in mind. The '*typical entrepreneur is technologically interested'* (MachinerySME), which is the 'niche market leadership-issue' and seeks to enhance the company valuation. This is in line with the private equity goal of exit orientation. Only SavingsBank wonders why all are still not striving for '*sustainable growth rather than uncontrolled growth*'. He adds: '*sustainable growing companies are at the end the most successful ones'*.

Importance of Financial Stability

GermanPE states that credits will become dearer. Therefore financial management is of essential importance, which is in line with SavingsBank or

SmallSME. The other issues refer more to the financial crisis rather than to Basel II. Therefore, stability becomes more important as non-cyclical businesses (like services) are more stable than cyclical ones, which will lead to an adjustment in the business focus of private equity companies. Prior to the financial crisis the credo had been: 'there will not be any business cycles any more'. Consequently, company valuations rose to record heights, as FamilyOffice points out. Contrary to the other interviewees he points out that private equity has always focused more on cash flows than on strategic issues in order to safeguard an investment. He does not believe that the financial industry will learn from the experience of unsuccessful and highly leveraged buy-outs in the past. It depends only on the new availability of funds until the next 'bonuses driven bubble' emerges.

The importance of liquidity is astonishing, as many interviewees point out (SMEAssociation, for example). GermanPE said that it is one of the primary aims of private equity to provide liquidity. FamilyOffice and PrivateBank provide some explanation by pointing out that private equity companies are cash flow and cost orientated. That means that they can start from a considerable comfortable position.

The interviewees from the financial community, RestructuringPE for example, attribute this to the difficult situation of non-bank financiers themselves: '*in times of financial crisis they will currently focus on financial stability in order to reduce investment per transaction'*. Furthermore, InternationalPE points out that it will become more and more difficult to compensate liquidity fluctuations with bank credits: in times of Basel II and the financial crisis, credit is more difficult to acquire. Furthermore he states: '*covenants will become much tighter'*, prior to Basel II '*there had been covenants in a light version'*.

SMEAssociation adds to this: whereas banks under the Basel II regime opt for increased securitisation (like land charges on the house of the owner), private equity companies do not use such securities and have to have a

special focus on a valid financial basis. In addition, interviewees, such as LargeBank and StatePE, indicate that financial stability is essential for enhancing the equity ratio and the freedom of choice regarding corporate financing.

CharteredAccountant came up with another interesting explanation. He argues that valid liquidity management shows that managers are capable of managing their own money efficiently, which indicates that they will do so also with foreign money. SeedPE and MezzanineBank follow into the same direction by stating that it needs a valid management to reduce gearing. An a-priori valid liquidity position enables a higher potential gearing and therefore a lower risk due to a smaller equity ticket by the investor.

Soft Facts versus Hard Facts

In line with the hypothesis, MezzanineBank argues that private equity investors look for management and markets as well as other soft facts as these are the drivers for exits and exit valuation. For MezzanineBank, the increase in all values is an indicator that SMEs are becoming increasingly aware and knowledgeable of private equity. On the other hand, SeedPE wonders why management ranks so low. FamilyOffice provides a more agnostic view by pointing out that '*the only real criterion is the exit*'.

Affinity to Non-Bank Financing

According to MachinerySME non-bank financing is becoming more important due to Basel II and the current crisis: SMEs with a poor (financial) performance will have difficulties due to the rating-based capital requirements to get credit. Shopping around is hardly possible due to the objective rating approach. Therefore, non-bank financing will increase as this will be the last financing possibility for those SMEs.

LargeBank believes that this ‘last chance’ perception is connected with a necessary change in mind-set regarding handing over part of the decision taking. On the other hand, the pro-active marketing of private equity firms etc. enhances awareness regarding financiers, despite control and voting rights beyond bank requirements.

6.8 QUALITATIVE ANALYSIS HOW SMES CAN COPE BEST WITH THE EFFECT OF BASEL II

Within the interviews, SMEs and financiers expressed their views on the future of corporate financing of SMEs in the Post-Basel II era. The comprised findings can be found in sections 6.8.1 and 6.8.2. These findings, in relation to other opinions expressed within the 17 semi-structured interviews, build the basis for suggestions on how SMEs can cope best with the effect of Basel II, as stated in the synopsis section 7.3.

6.8.1 The SMEs’ View on Future Corporate Financing of SMEs

ServicesSME believes that due to Basel II banks lost credibility and trust. A credit application has to be filled in, rather than the bank providing a ‘buying offer’ for finance. Therefore SMEs are looking for alternatives to credit financing: independence is the key. Furthermore, it is an issue of financing cost and securities, as Basel II makes credit more expensive.

On the other hand, MachinerySME believes that the house bank principle will last regarding the good SMEs, as ‘*bad SMEs are good customers’* of banks. Banks still play the key role as an information source as an SME does not want to have great publicity in terms of finance. This acknowledges earlier findings from Deloitte & Touche (2007), as a valid alternative or supplementation of subsidised credits is assumed in this case (SmallSME).

This is in line with MicroSME who believes that, in general, it will be dispersed more widely, but this is not only voluntarily. Some SMEs have had to look elsewhere as they were 'rated' out by their banks. In the voluntary cases, the bank might be the facilitator of, for example, mezzanine or state-subsidised loans. Therefore MicroSME and MachinerySME believe that the best way for an SME to stay sufficiently financed is to improve its rating parameter. This means enhancing the equity ratio by focusing especially on the finance and controlling side. For example, restructuring the liability side via leasing etc. is not focused upon by the primarily technical-oriented SMEs. Furthermore, the focus on a house bank has been comfortable because SMEs are primarily locally oriented (which reflects their low assessment of the subprime crisis). The assessment of financiers that non-bank financiers play a major role as an information source is regarded as a leaded answer due to 'own interests'.

6.8.2 The Financiers' View on Future Corporate Financing of SMEs

Similar to the SMEs, the majority of financiers acknowledge the findings from the quantitative analysis that SMEs are more local centric, meaning that the influence of investment banks and the subprime crisis is assessed less strongly compared to the financial community.

Some financiers, such as SeedPE or MezzanineBank, believe that bank credits will become dearer as SMEs will not really have a chance to obtain a rating as good as a major corporation. However, the traditional banking sector (like SavingsBank) believes that there is no general credit crunch in terms of SMEs. It is interesting that hardly any of the non-bank financiers were knowledgeable about the favourable SME adjustments made in the later phases of the Basel II process. Initiated by Basel II, fuelled by the current financial and economic crisis, it becomes more important, according to some financiers like SavingsBank, to have a valid '*banking relationship*' (including more than one house bank). It is argued that bank credit will still be

the most attractive form of finance after retained earnings, as other forms of finance will become even more expensive. SMEAssociation regards the German ‘house bank’ principle as ‘unique’. On the contrary, FamilyOffice believes that ‘*financial engineering*’ should be only of minor importance – the key is not to avoid dependence on a bank, but to avoid dependence on customers, business lines or sectors.

Yet, the assessments on the development of the house bank principles are mixed: whereas the majority of the private equity companies believe it will cease, some banks, such as StateBank, SavingsBank and PrivateBank, believe it will be strengthened. This is partly due to Basel II as ratings are laborious which makes shopping more time consuming compared to the past. Furthermore, if one single bank has all the knowledge this enables the bank to provide a better assessment.

StateBank believes that subsidies (state backed credits) in particular will become more accepted in the future. Yet, the banks state that this is especially valid in terms of credit, however, they acknowledge that major SMEs (beyond 10 million euros, SavingsBank) will widen their portfolios to non-credit alternatives (due to Basel II). However, the immediate reaction which is wanted by politics, in extending the subsidy volume, will not happen at that speed.

The general advice given by financiers is to become more bank independent by either focusing on internal financing from generated cash flows (as FamilyOffice favours, for example), or by broadening the financing variety (as GermanPE suggests, for example). However, SeedPE adds that equity-based financing should be used sparingly due to the low valuation in times of financial crisis.

The key term is: ‘*restructuring the liability side of the balance sheet*’, as GermanPE puts it. This includes a short term one-off in the case of factoring,

for example, as financiers like GermanPE advocates, as well as the longer term methods. RestructuringPE, for example, favours sale-and-lease-back as well as reverse factoring to suppliers. LargeBank adds that a greater openness is beneficial for the banks too: '*a greater openness for non-bank alternatives is in the interest of the bank too: a broader and more stable basis is advantageous for the SME and for the bank!*' However, the issue might be that approximately 50% of the private equity funds come from banks and insurance companies (Frommann, 2006a) – refinancing will become more difficult according to GermanPE and SeedPE.

6.9 SUMMARY OF QUALITATIVE ANALYSIS

According to Miles and Huberman (1994) the categories of the qualitative analysis seem fitting as there is evidence regarding the three hypotheses. The qualitative analysis brought deeper insights to the findings through triangulation which led to a modified hypothesis, as the synopsis in section 7 shows. For example, new themes generated from the interviews, such as 'Basel II as a catalyst' and 'financial crisis as an accelerator' were generated by the author. The notion of a 'core bank' regarding certain segments rather than a generic 'house bank' was adopted from the thoughtful insights of the interviewees with their strong banking experience.

The key findings are:

- Basel II is a strong catalyst / trigger for change in SME corporate finance; the financial crisis is an accelerator of this change.
- Despite the long and intense discussion on Basel II for nearly ten years now, there are still widely different perceptions in terms of SMEs. StateBank talks of a 'perception gap' as the 'Basel II SME package', which was added in 2003 / 2004, with its favourable elements is still not well received in the general perception of SMEs, SME associations and even banks.

- House bank principle – what comes next: ‘core bank’ rather than ‘house banks’?! But shopping around between banks has become more difficult.
- Communication and transparency is key in improving relationships with one’s ‘(core) bank’.
- Private equity fosters credit engagements as it enhances the equity ratio.
- Political support is needed to reduce fear of Basel II and financial crisis. German PE points out that the law to protect against foreign investors (Außenhandelsgesetz, 2009) would not have been passed today on the verge of the subprime crisis.

7 CONCLUSION: QUANTITATIVE AND QUALITATIVE SYNOPSIS

The findings from the quantitative analysis in section 5 provide evidence regarding the three hypotheses, as stated in section 4.2.3. The subsequent qualitative analyses in section 6 *provided a much deeper and differentiated insight than the mere quantitative analysis, which provides statements with (statistical) evidence regarding the cause-of-effects but little evidence regarding the causes of causes in scientific realism terms (see research design deduction in section* 4*).*

Triangulating the findings from the initial quantitative research part with the qualitative based research elements added new themes like 'Basel II as a catalyst and financial crisis as an accelerator'. This led to slightly revised and amended hypotheses in the quantitative-qualitative synopsis, as provided in this concluding section. Furthermore, the findings from the qualitative analysis provided in-depth insights in terms of 'practical, or economic significance' (Goldberger, 1991), in addition to the quantitative analysis and literature review (see section 3*), regarding how SMEs can cope best with the effects of Basel II.*

7.1 SUMMARY

The research design rationale and three initial hypotheses were derived on the basis of the background gathering phase, which took into account elite interviews and an initial literature review:

1. Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.

2. SMEs can cope best with the effect when they:

a) proactively engage in rating and improve the parameters, or

b) they adjust their strategy as stated in hypothesis 3

3. Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

The structured literature review of primarily Pre-Basel II research provided evidence that no consistent pattern regarding the effect of Basel II on SME financing has emerged – neither on a country specific basis nor regarding 'discriminating' Basel II related to the discriminating factors, 'Financing focus: bank-based economies vs. financial-based economies', 'good protection of creditor rights / forbearance', 'effect on economic structure', 'effect on banking structure / sophistication' and 'Basel II intrinsic approaches'.

Therefore, further and more refined research was needed in order to evaluate how the effect will look like and to consider how SMEs can cope best with Basel II. This was undertaken by applying a sequential exploratory mixed-method approach based on Creswell (2003), as this was suited best to the philosophic position of 'scientific realism' (Smith, 1998) as well as the research purpose. The extensive quantitative data analysis, based on self-administered questionnaires from SMEs, banks and non-bank financiers, was then triangulated through a consecutive qualitative analysis.

In line with the vast majority of researchers, data gained from the quantitative survey was analysed using various quantitative methods. Mathematical models were set up for each of the three initial hypotheses and they were tested using appropriate statistical tests, including an analysis of correlation as well as multiple linear regression. This extensive tool-set was used in order to set the author's Post-Basel II research into perspective with a variety of quantitative Basel II research papers. The quantitative analysis provided strong evidence on a statistically or near statistically significant basis regarding the three initial hypotheses as stated in section *4.2.3*.

The subsequent qualitative analysis of the semi-structured in-depth interviews went beyond mere statistical significance and enabled explanation

of how SMEs can cope best with the Basel II effect. According to the author this supports to enhance external validity (Saunders *et al*, 2007:151) in relation to the mere quantitative studies under review.

This research design was chosen to enhance interpretability (Robson, 2002:371) and to avoid shortcomings of other methodologies, in line with Brewer and Hunter (1989) who proposed a pragmatic approach to reconciling quantitative and qualitative methods. This can be seen from the fact that the hypotheses were further refined and amended based on the triangulation undertaken through the qualitative analysis.

7.2 FINDINGS FROM TRIANGULATION

The triangulated findings are grouped according to the initial three hypotheses within the author's research design. Whereas the findings from the quantitative analysis provided evidence for the hypotheses as is, the insights from the semi-structured elite interviews led to amendment of the first hypothesis and a slight modification of hypotheses 2.b and 3.

Ad 1.) Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.

It is far too early to speak of the end of the house bank principle. The synopsis of the quantitative and the qualitative analysis provides a much more differentiated view. The quantitative findings provide evidence that the house bank has deteriorated in terms of the SME and financier models tested. However, the reflection of the 17 interviews provided a much more differentiated picture, beyond statistical significance, which leads to the following revised hypothesis, which will be explained in detail below.

Hypothesis 1 revisited:

Corporate finance has become different for SMEs because the 'house bank principle' has changed to a 'core bank principle' due to Basel II. Shopping around regarding credits will be more difficult which makes financing more difficult. This could be overcompensated by major SMEs by using non-credit corporate financing which leads to a reduction of the 'house bank' principle.

Basel II is regarded as a catalyst for change. However, the change will be accelerated and influenced by the current crisis. On the one hand, there is evidence that the 'house bank principle' will be reduced: the evidence, from the SMEs' point of view from the self-administered questionnaires as well as from the interviews, is that credit will become dearer and more difficult to get. Because of 'cheap money' of the past and a risk-agnostic approach of Basel I, Basel II is regarded by the majority of interviewees, but not by all, as a trigger for improving margins in the SME area.

Due to shortage of money in times of the banking crisis credits are sanctioned as some interviewees point out. SMEs believe that major private banks have been stronger in withdrawing from SME financing than savings banks and cooperative banks. This is in line with SavingsBank and PrivateBank comments. Based on experience from their own institutes they believe that the 'credit crunch' is more of an SME perception than reality. Credit is still available, yet, due to enhanced requirements of Basel II and the financial crisis it has become more difficult to obtain. Therefore, shopping around for credit alone becomes more difficult with the effect that the 'house bank' principle will be substituted by a 'core bank' principle. This means that a bank will become the sole provider of credit, but not of all financing. Regarding other means of finance, the 'core bank' might act as a kind of facilitator.

The focus of the SMEs is therefore to reduce dependency due to the perceived effect of Basel II that credit has become dearer or even more difficult to get at all. As banks have been the sole provider of finance for decades that means reducing bank credit and building up equity. SMEs are seeking alternatives, which is also favoured by banks who speak of a win-win-situation for SMEs (more solid basis) and banks (reduced risk) alike. Alternative means of finance, private equity and strategic investors are therefore on the rise because of the Basel II rating effect and a more open-minded younger entrepreneur generation with a stronger educational and often more international background. However, banks like SavingsBank believe only major SMEs, beyond 10 million euros, have real freedom of choice. This is in line with studies such as those by Frey and Kuhn (2007) or BdB (2005).

Although the findings from the quantitative and qualitative analysis provide evidence that awareness of control and finance is too low, especially from the financiers' point of view, it has started to increase due to Basel II. This will have a spill-over effect as dealing with internal finance will foster interest in potential financing alternatives to bank credit. On the other hand, some interviewees from banks believed in a revival of the 'house bank principle' due to Basel II. Shopping around under the Basel II regime is very time and cost intensive because an SME has to intensively prepare for the rating process which has become more harmonised throughout the banking sector.

Furthermore, the financial crisis led to an economic crisis (Strategic Directions, 2009) which has led to deteriorating earnings and cash flows for SMEs. This reduced their financing options outside their 'house banks'. In times of crisis subsidised state loans became more attractive which has strengthened the house bank principle as the subsidies are handed out via the 'house bank'.

As stated below regarding hypothesis 2.a, Basel II leads to a stronger differentiation which could lead to even better corporate finance options for 'good SMEs'.

Ad 2.a) SMEs can cope best with the effect when they:
a) proactively engage in rating and improve the parameters, or
b) they adjust their strategy as stated in hypothesis 3.

Note: Hypothesis 2.b will be explained together with the correlated Hypothesis 3.

Whereas less than 30% of the participants from the self-administered questionnaire specified their rating, the interviewees believed that knowledge about rating was an issue three to five years ago but is now largely accepted. Yet, the focus on improving rating can be deduced from the analysis of the questionnaires by comparing the findings from the quantitative analysis on company strategy and company potential with the rating parameters. The increase in strategic elements and company potential elements indicate a clear – but maybe unconsciousness – urge to improve ratings.

A good rating ‘nearly automatically’ leads, according to some interviewees from banks, to better terms. The ‘good SMEs’ will have easier access to capital and lower rates as banks will compete on them and because the ‘good SMEs will not subsidise the bad ones any longer’. However, the deeper insights from the semi-structured elite interviews provide evidence that there is still room for improvement.

SMEs still underestimate the value of finance and control in terms of Basel II and in terms of business as well. An explanation could be that a focus on finance is regarded as a defensive strategy, compared to striving for technology leadership or for gaining market share for a ‘real entrepreneur’.

Yet, even the SMEs for which rating is a ‘mere number’ ‘learned to play’ the game and actively try to improve specific parameters. The most advanced ones recognised that the minor effect of a rating improvement includes better credit conditions, while the major benefit is a better and more sustainable competitive edge.

On the other hand, communication and transparency is improving, although it is still low from a bankers' point of view – despite the year-long house bank principle. Yet, this is a two-way issue as banks should regard the time taken to explain a rating to be an investment in a stabilized banking relationship.

Ad 2.b) and Ad 3) Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

The assessment of SMEs and financiers, in terms of 'investment criteria of non-bank financiers in the past and in the future', is to a large extent related, as the quantitative analysis of the self-administered questionnaires showed. SMEs and financiers see the same top-three priorities in terms of future importance, yet in a slightly different order: growth, market position and leading edge technology. This supports the hypothesis that non-bank financiers are searching for companies which show a business vision for gaining and enhancing a Unique Selling Proposition (henceforth USP).

An interviewee traces this strongly related view back to the 'entrepreneurial spirit' of non-bank financiers, which is closer to the entrepreneurs themselves while it is contradictory to a potentially risk-averse banker's approach. This urge for niche market leadership is widely acknowledged by the interviewees, with only one banker wondering why growth is still so dominant rather than sustainability.

The combined findings provide evidence that the strategy of SME entrepreneurs is, in general, 'unconsciously private equity connected'. Private equity fosters soft facts and 'offensive, entrepreneurial' market-related issues, such as striving for niche market leadership. This is partly in contrast to the perception of the bankers' approach which stresses the importance of the balance sheet related 'hard facts' under the Basel II regime. Even the strong increase in company valuation (see quantitative analysis) is regarded

as an indicator for a greater openness towards non-credit financing with Basel II as a catalyst.

In addition, the current financial crisis accelerates a new element which was initiated, according to the interviewees, by Basel II. The importance of financial stability is a combined effect of Basel II and the financial crisis. Private equity becomes more risk averse due to limited refinancing options. SMEs have learned how essential financial stability is in order to have freedom of choice.

Therefore, the hypotheses, 2.b and 3, have been adjusted as follows:

Hypotheses 2.b and 3 revised:
Financiers (especially non-bank financiers) will engage in SME corporate finance when they have a sound financial basis / management and when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.

7.3 ADVICE TO SMES

The advice initially stated in the hypotheses, that SMEs can cope best by optimising their rating or by adjusting their corporate strategy in terms of a niche-market leadership strategy and an openness towards new financiers, was strongly acknowledged by the findings from the quantitative as well as the qualitative analysis. In addition, the elite interviews in the qualitative phase provided further insights, as stated below. In general, especially as SMEs interviewed and FamilyOffice point out, it is important to have the right competitive strategy (for example, no mono-causal business focus, as ServicesSME puts it). If you lose competitiveness ‘financial engineering’

cannot help you out if you are an SME. However, a stronger focus on finance and control is decisive for staying sufficiently financed. The key findings are:

> The house bank principle will be partly strengthened and partly weakened with Basel II as the catalyst. This ambivalent finding is no contradiction. In terms of credit, shopping around will be reduced. On the other hand non-credit alternatives will be increasingly used – with the placet of the banks.

> The hypotheses are largely confirmed. The advice is either to improve the rating or to strengthen the equity ratio. However, there is no contradiction between these two options, especially in times of financial crisis.

> The best financial strategy is a valid business strategy and deployment. For example StateBank believes that '*the recommendation one can give to SMEs is: the better the equity ratio, the better the rating'*.

> Initiate or strengthen the paradigm shift: finance and controlling are key success factors due to Basel II (and the subprime crisis) as other areas, such as innovation or a close focus on market trends is already greatly prevailing. For example, SMEs have to manage the balance sheet pro-actively. The focus should shift from cost of capital (credit rates) towards an optimal structure of financing.

> Enhancing transparency is essential – regarding all forms of finance.

As a golden rule nearly all financiers and SMEs confirmed the focus on rating (LargeBank, for example) and / or strengthening the equity base (especially ServicesSME).

Business Strategy vs. Financial Engineering

SMEAssociation and especially FamilyOffice believed that the best financial option is a solid business which is '*neither financial engineering, nor tax optimised'*. In Germany many entrepreneurs do not draw a clear dividing line between company interests and personal interests as owners.

Enhance Focus on Finance and Controlling

Nearly all interviewees, such as StatePE or InternationalPE, pointed out that a stronger focus on finance (especially cash management) and controlling (especially planning and forecasting) is decisive. PrivateBank states, for example: '*there is still no alignment to the duration of the respective financing'*. LargeBank regards rating elements as key instruments for steering the company, not only regarding financial aspects, but *'rating helps a company to steer the company better'*.

The advice MezzanineBank will give to SMEs is that '*financing is as important as, a production factor as are, the products the company is producing'.* The best product is worthless if it cannot be financed.

GermanPE and PrivateBank argue that SMEs should focus actively on the balance sheet – reducing debt and substituting it with equity. ServicesSME comes up with a straightforward approach: reduce investment in order to stay independent ('spend only the money you have'). Therefore, financiers and the SME Association advise SMEs to put a strong focus, in the future, on planning for the sake of the rating value and business sustainability. The focus should not only lie on profit & loss planning, but more than ever on liquidity and cash-flow planning.

LargeBank believes that SMEs have become more and more aware of ratings, equity ratio, etc. – however, at the end of the day credit rates are decisive. LargeBank has set up a consulting division to advise SMEs on that. Yet, SMEs are not yet willing to pay a bank for such a service, which would pay off according to his assessment.

Transparency is Key

As a remedy, all financiers and intermediaries CharteredAccountant and SMEAssociation, advise SMEs to be more pro-active regarding the disclosure of financial data. MezzanineBank states that SMEs should

'actively' improve planning and reporting. PrivateBank stresses the importance of open communication.

LargeBank advises SMEs '*to proactively scrutinise ratings in order to get an answer as to what one can do in order to improve the rating'*.

It seems that there is a paradigm shift regarding the former contradiction of 'sole house bank' vs. 'alternative forms'. As SavingsBank puts it, '*if SMEs extend their means of corporate financing on a broader and stable basis everybody benefits – the SME as well as the house bank*'.

7.4 AREAS OF FURTHER RESEARCH

The findings above add to the debate on the effect of Basel II on SMEs. This study uses a comparative research design to negate a simple positivist answer of a homogeneous effect across countries and regarding important 'discriminating factors', which is sometimes stated in the research papers under review.

By means of a triangulated explorative mixed-method design evidence regarding the amended hypothesis is shown as is valid advice regarding how SMEs can cope best with regard to corporate financing under the new Basel II regime.

However, care has to be taken, as Hudson (2003) points out. He believes that banks will be obsessed until the year 2009 / 2010 with interpreting the regulation, as there are transitional periods, according to Suyter (2008). Furthermore, more than 40 opt out clauses will make a unified comparison difficult and inconsistencies will arise regarding the nation-specific application when a multinational bank operates loans abroad. Therefore, the research could only represent preliminary findings regarding the current and initial state of Basel II.

In addition, further research is needed as the articles under review in this paper used empirical data based on the prospective implications of Basel II from a Pre-Basel II perspective. This seems valid as many banks had already applied the Basel II principles as a kind of trial run, even before the year 2007, to a certain extent. Yet, a track record of three to five years is needed in order to use the advanced approaches. Nevertheless, future research, which should be based on a 3 to 5 year period of data after the official start of Basel II, could reshape these findings. This will further refine the picture in order to enhance external validity (Robson, 2002:100-107) of the author's findings.

Furthermore, the intense cross-country literature review and critique provided in section 3 and the methodology provided in section 4 can provide the basis for similar research regarding SMEs and the Basel II effect in other (European) countries.

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Appendix A GLOSSARY AND ABBREVIATIONS

ABS	Asset Backed Securities
Adverse Selection	A company has a better credit quality than assessed and vice versa (Jankowitsch *et al*, 2007).
AIG	Accord Implementation Group
A-IRB	Advanced Internal Rating Based Approach
AMA	Advanced Measurement Approaches
ASRF	Asymptotic Single Risk Factor
Asset Correlation	The degree to which asset values of companies (and, therefore, according to the Merton model, default probabilities) move in tandem. Equity prices are widely taken as a proxy for asset correlation.
Bafin	German bank supervisory body
Basel I	Regulation from 1988, '*to protect depositors and deposit insurance schemes from the consequences of inadequate or reckless portfolio management by banks and to prevent systemic instabilities arising from large-scale banking failures'*. Under the 1988 Accord, banks have to hold capital of at least 8% of their Risk Weighted Assets (henceforth RWA, BCBS, 1988) as regulatory capital.
Basel II	The aim of Basel II (see CRD from 2006 in the EU) as New Accord was to *'develop a framework that would further strengthen the soundness and stability of the international banking system'* and to ensure *'more risk sensitive capital requirements*'.
BCBS	Basel Committee on Banking Supervision
BIA	Basic Indicator Approach, Operational Risk
BVK	German Private Equity and Venture Capital Association
CCF	Credit Conversion factor
CDO	Collateralised debt obligations
CEBS	Committee of EU Banking Supervisors
CRD	Capital Requirements Directive
CRA	Credit Rating Agency
CRMT	Credit Risk Mitigation Techniques
DSGV	German Savings Bank Association

EAD	Exposure at Default: EAD is in simplified terms the height of credit at the time of the default which may be a result of creditors' decisions or external conditions in case of market-driven exposures.
Economic Capital (EC)	Bank capital allocated by a bank via internal management decision (Scott, 2002).
F-IRB	Advanced Internal Rating Based Approach
GFW	'Law to foster venture capital' in Germany, 2004.
GroMiKV	The last regulatory element so far comprises GroMiKV (2006) which substitutes Pre-Basel-II regulation on 'major and million credits' since 1st January 2008.
ICAAP	Internal Capital Adequacy Assessment Process
ILG	International Liaison Group
IMA	Internal Models Approach
IRB	Internal Rating Based (Approach)
IRC	Incremental Risk Charge
K	Capital Requirement Function
KfW	Kreditanstalt für Wiederaufbau: the state owned SME bank.
KWG	Kredit-Wesen Gesetz ('credit sector law' in Germany).
LBOs	Leveraged Buy-Out
LGD	Loss Given Default: expressed as a percentage of exposures, is an estimate of the portion of any exposure that will be lost when a creditor defaults.
M	Maturity of Exposures: the effective remaining time until the credit has to be repaid.
MaRisk	MaRisk: in Germany MaRisk provides the regulatory basis for an integrated risk management system regarding Pillar 2. MaRisk was defined in 2005 and came into effect in November 2007. It substitutes the prior regulations MaH (trade book) and MaK (credit business) according to Schwirten and Zattler (2007).
Market Risk	Market Risk: in Basel II comprises the risk of losses derived from changes in market factors (BCBS, 2004:188).
PD	Probability of Default
PHB	Privately Held Businesses
QIS	Quantitative Impact Study
RAS	Risk Assessment Process, Pillar 2.

RC_{CR}	Regulatory Capital (Credit Risk)
Regulatory Capital (RC)	Bank capital enforced by regulator under Basel II.
Risk Loss Function	Function to calculate the regulatory capital for unexpected losses.
RWA	Risk Weighted Assets
SC	Solvability Coefficient
SolvV	In Germany Basel II became a law as an amendment of the KWG and the so-called Solvabilitätsverordnung (SolvV).
SREP	Supervisory Review and Evaluation Process regarding Basel II, Pillar 2.
Subprime sector of the market	According to Hall (2008), the subprime sector of the market (i.e. those securities, such as residential asset-backed mortgages and CDOs), contaminated by defaults arising from 'self-certificated' mortgages or mortgages otherwise granted on the basis of a high multiple of earnings or as a generous proportion (often 100% plus) of the market valuation.
UL-only	Unexpected Losses-Only: = 1.06 (adjustment factor from EU regulators due to 'unexpected losses-only' calculation).
USP	Unique Selling Proposition
VaR	Value at Risk

Appendix B LATENT AND MANIFEST VARIABLES

The hypotheses are repeated for convenience reasons in section B.1 before the latent variables regarding each of the three hypotheses are justified in section B.2.

Sections B.3 and B.4 provide the justification of the manifest (dependent) variables (indicators). Most indicators have to be checked in relation to_

- Post-Basel II Assessment (next two years, as the future is less predictive than the remembrance of the past);
- in relation to 'Pre-Basel II' (last three years).

B.1 Hypotheses

A hypothesis is a tentative answer to a question. From the literature review and background gathering phase by means of semi-structured elite interviews the following initial hypotheses were derived regarding SMEs and financiers:

1. **Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.**

2. **SMEs can cope best with the effect when they:**
   a) proactively engage in rating and improve the parameters, or
   b) they adjust their strategy (as stated in hypothesis 3).

3. **Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.**

Hypotheses regarding SME

1. ***Corporate finance is becoming more difficult for SMEs because the 'house bank principle' is deteriorating.***

   > In testing that hypothesis:

   Evaluate which implications Basel II has on relationship banking in Germany and which SMEs seem more or less affected by the regulatory impact, in order to provide insight for strategies to cope with the impact in an optimal way.

2. ***SMEs can cope best with the effect when they:***

   a) proactively engage in rating and improve the parameters or;

   b) they adjust their strategy as (stated in hypothesis 3).

   -> In testing that hypothesis:

   Evaluate which kind of strategy and financial setting is appropriate in order to make either the acquisition of credits easier/cheaper or to become more attractive to non-bank financiers as an SME.

3. ***Financiers (especially non-bank financiers) will engage in SME corporate finance when they adjust their strategy in terms of growth with the aim of niche market leadership and when they open up for exit strategies.***

   -> In testing that hypothesis:

   Evaluate if these strategies are suitable to becoming more attractive for non-bank financiers.

B.2 Latent variables

As stated in section 4.3.3 latent variables can be regarded as meta-'dependent variables'. Regarding SMEs they comprise the following latent variables.

Latent Variables regarding hypothesis 1

The latent variables regarding hypothesis 1 are as follows.

> Ease of getting a loan

➔ *Justification in relation to hypothesis/research question:*

'Ease of getting a loan' is a latent variable regarding the hypothesis that 'CF became more difficult because the house bank principle is deteriorating' because of the following reason:

SMEs have relied on bank loans for decades. According to DSGV (2005) the main source of SME financing was from bank loans. A reduction means that this decade long relationship is deteriorating.

> Changes in SME affinity to banks and non-bank financiers

➔ *Justification in relation to hypothesis/research question:*

'Changes in SME affinity to banks and non-bank financiers' is a latent variable regarding the hypothesis that 'CF became more difficult because the house bank principle is deteriorating' for the following reason (based on the findings from the background gathering phase): Changes in the affinity from banks to other financiers (to illustrate, see Nitschke and Kuper, 2007), or internal funds is a sign that the 'house bank principle' is deteriorating as a kind of early indicator.

Latent Variables regarding hypothesis 2.a

The latent variables regarding hypothesis 2.a are as follows.

> Rating related categories like quality of management, financial stability

➔ *Justification in relation to hypothesis/research question:*

The respective occurrence of 'rating related categories' is a latent variable regarding the hypothesis that 'SME cope best by optimising rating' which is straightforward as the rating categories define the rating (see Zimmermann, 2007).

Latent Variables regarding hypotheses 2.b and 3

The latent variables regarding hypotheses 2.b and 3 are as follows.

> Investment attitudes regarding SMEs (hypothesis 3 only)

➔ *Justification in relation to hypothesis/research question:*

The respective occurrence of 'investment attitudes regarding SMEs' (see growing SME focus, Höppner and Ostmeier, 2009) serves as a latent variable regarding the hypothesis that 'financiers invest in SMEs if they either deploy a (niche) market leadership strategy and when they open up for exit strategies' for the following reasons: an attitude towards SMEs in general is a prerequisite for investing in a particular SMEs which deploys a specific strategy (see below) which suites non-bank financiers (see Schäfer *et al*, 2004 and 2007).

> Business vision for gaining/enhancing USPs
Willingness for incorporating new financiers

➔ *Justification in relation to hypothesis/research question:*

The respective occurrences of 'business vision for gaining/enhancing USPs' and 'willingness for incorporating new financiers' are latent variables regarding the hypotheses that 'SMEs cope best by restructuring to fit for non-bank financiers' and that 'financiers invest in SMEs if they either deploy a (niche) market leadership strategy and when they open up for exit strategies' for the following reasons:

According to Ries and Trout (2000) a sustainable USP is a prerequisite for gaining a competitive edge in order to reach a leading (niche) market position. The elements of USPs manifest in the indicators of company potential and is based on Nagl (2003) and Jobber (1995). Based on elite interviews, Hedtstück (2007) points out that private equity companies foster the development of SMEs with a focus on growth rather than cost

cutting. Growth is the major motivation for going public, as Frey and Kuhn (2007) point out. This is an indication that growth is important.

Furthermore, the willingness to incorporate new non-bank financiers is a prerequisite for an exit orientation as this is the main potential leverage revenue stream of non-bank financiers (BVK, 2006).

B.3 Manifest Variables SME

The manifest (dependent) variables regarding research unit SMEs comprise:

Company background

> Non-financial characteristics which provide basic information about the sample characteristic:
  - region
  - years of existence
  - sector
  - size (revenue, employees): last three years

➔ *Justification in relation to hypothesis/research question:*

As no general consistent picture regarding the effect of Basel II on SME financing has emerged, there might be certain patterns in relation to SME specific clusters such as. The variables are used in the multiple linear regression.

- Region: state-fostered loans are different in each of the 16 federal states. In Bavaria, for example, federal state owned BayernKapital double the investment from the national state fostered programme of the High-Tech-Gründerfonds (Huber, 2006).
- Years of existence: according to authors like Schäfer *et al* (2007) the type of financing is dependent of the maturity (and the drive for innovation) of a company and furthermore state fostered loans are classified according to years of existence (so-called ERP-capital, KfW, 2008).
- Sector: the sector classification has derived from the main clusters based on the official classification of the Federal Statistics Office

(Statistisches Bundesamt, 2008). Such clustering is quite common in financial research (Frey and Kuhn, 2007; Deloitte and Touche, 2007; and BVK, 2008).

- Size: number of employees and revenue size which are clustered according to the SME definition of the European Commission (2003a).

Strategic SME company focus

> Company strategy focus in the past and in the future

Focuses on …

… financial stability/liquidity

… increasing profitability

… enhancing market position

… quality excellence

… technological excellence

… cost excellence

… and increasing company valuation

➔ *Justification in relation to hypothesis/research question:*

The variables serve as an indicator for the latent variable 'business vision regarding USP' as described by Nagl (2003) and Jobber (1995), see strategic SME focus regarding investment criteria of non-bank financiers in section 5.6.1.

According to Hedtstück (2007) and Schäfer *et al* (2007), and based on the interviews with elite investors, financiers invest if certain criteria are fulfilled. If SMEs aim for a sustainable USP (growth, niche market, technology leadership, brand building, cost leadership, see section 5.6.1, with reference to Nagl, 2003, and Jobber, 1995) this is an indicator for the tendency of (non-bank) financiers to invest in SMEs. The same applies to exit orientation (indicator: enhancing company valuation). Investors typically stay three to ten years (Schäfer and Fischer, 2008). If the strategy is more conservative focusing on cost, profitability, improving financial ratios and quality this is an indicator for a focus on improving ratings in

order to enhance the chances of getting access to cheaper bank loans. In 2004, the main strategic focus for German SMEs was on cost cutting (Kühlhorn, 2004).

Financing sources
(including 'attitude towards (near) equity financing areas')

> Financing sources in the past compared to preference in the future
- retained earnings
- share holder (equity/loan)
- bank credit
- SME subsidies
- supplier credit
- leasing
- factoring
- mezzanine
- securities (ABS)
- private equity
- strategic investor
- IPO (e.g. entry standard)

➔ *Justification in relation to hypothesis/research question:*

Changes in the financing behaviour are an indicator for the latent variable 'ease of getting a loan' (usage of credits), 'changes in SME affinity to banks and non-bank financiers' (usage of non-credit sources of finance, see section 5.4.1). For example, Hartl (2002) acknowledges that factoring does not harm the deposit of securities of credits (as the creditworthiness of the client of a company is taken into account), whereas leasing is often used, when lines of credits are utilised.

The classification is derived from general research on SME financing (Frey and Kuhn, 2007:35) and literature research focusing on selected financing sources like shareholder loans (Hartl, 2002), bank loans (Jacobson *et al*, 2006) or mezzanine (Golland and Gehlhaar 2002). Wilson *et al* (2005)

found empirical evidence, based on UK data, that SMEs use trade credits more intensively than larger corporations, even in times of financial distress. Frommann (2006b) regard the new 'entry standard' due to the low entry barriers as an attractive IPO option for SMEs (and interesting exit option for SME financiers).

The segmentation in the non-bank financier cluster is derived by looking at the various associations which represent providers of the main clusters of finance: Business Angels associations like BAND; associations for alternative investments like Bundesverband Alternativer Investments (mezzanine); Bundesverband Deutscher Leasing-Unternehmer (leasing); Deutscher Factoring Verband (factoring); and BVK (private equity and venture capital).

Investment criteria of non-bank financiers like private equity

> Estimates of SMEs regarding non-bank financiers' investment criteria:

- financial stability in the past (equity ratio, liquidity etc)
- good market position
- leading edge products/technology
- good comparative cost position in relation to competitors
- ambitious management regarding company valuation
- strong financial management
- future growth options
- willingness to grant rights to investors

➔ *Justification in relation to hypothesis/research question:*

The manifest variable 'investment criteria of non-bank financiers' (see section 5.6.1) corresponds to the latent variable 'business vision for gaining / enhancing USPs' straightforwardly. The various elements correspond with the respective sub-elements of the latent variable in terms of the hypothesis like 'a strategy in terms of growth with the aim of niche market leadership' (see Schäfer *et al*, 2004 and 2007 as well as Nagl, 2003, and Jobber, 1995).

The latent variable 'willingness for incorporating new non-bank financiers' corresponds to the manifest variable 'willingness to grant rights to investors' (see section 5.6.1) because it shows that the reluctance to disclose financial information is decreasing (see section 3.3, Diller *et al*, 2005).

Credit rejection criteria

> Estimated general rejection criteria regarding loans:
  - reduction of credits to SMEs in general
  - poor sector outlook

> Estimated company specific rejection criteria regarding loans:
  - poor market position compared to competitors
  - profitability in the past
  - financial situation in the past (equity ratio, liquidity, etc)
  - insufficient securities/liabilities
  - unfavourable outlook (revenues, earnings, etc)
  - quality of management team
  - differences in assessment of company strategy
  - personal friction between company management and banker

➔ *Justification in relation to hypothesis/research question:*

The manifest variable 'changes in credit rejection criteria' is the pendant to 'investment criteria of non-bank financiers'. This arises directly from the fact that it is an indicator regarding the manifest variable 'ease of getting a loan' (changes in credit rejection criteria, see section 5.4.1). The generic rejection criteria reflect the general situation (SMEs in general or certain sectors in general). The elements like track record, outlook, planning consistency and management capabilities correspond to 'soft fact' rating issues (Nagl, 2003). Other issues like 'different judgements regarding strategy', 'lacking consistency in planning' or 'personal frictions' are specific to the SME and bank relationship (derived from elite-interviews from the background gathering phase).

Importance of non-bank financiers as information sources

> Information sources regarding SME corporate financing:
  - banks
  - non-bank financiers (like private equity)
  - chartered accountants
  - Chamber of Commerce
  - trade press/internet

Justification in relation to hypothesis/research question:

The latent variables 'investment attitude regarding SMEs' manifest in the importance of non-bank financiers as information sources in relation to other obvious information sources like banks. Straightforwardly, the more non-bank financiers play a role as information sources the more likely that SMEs will be financed not only by bank loans. The SME assessment is used to 'benchmark' the non-bank financiers' own assessment regarding their importance (see section 5.6.2).

> Bank relationship
  - how often do you have a call with the bank manager?
  - how often do you have a meeting with the bank manager?
  - number of employees in the finance department?

➔ *Justification in relation to hypothesis/research question:*

According to a finance communication study by Diller *et al* (2005) and feedback from bankers, in the background gathering phase, it was deemed that communication between SMEs and bankers was essential for building trust and ensuring transparency in order to have a valid credit relationship. The trend in frequency of calls and meetings (banking relationship, see section 5.4.1) is therefore an indicator for the latent variable 'changes in SME affinity to banks and non-bank financiers'. Hartl (2002) regards the improvement of the information policy as one of the key-success factors for SMEs in coping with Basel II.

> Rating knowledge, Rating Development

- knowledge about own rating
- knowledge about bank rating approach
- rating development

➔ *Justification in relation to hypothesis/research question:*

Authors like Nitschke and Kuper (2007) identify the importance of knowledge of the rating procedure which enhances the bargaining power regarding financing. Being knowledgeable about rating (rating knowledge and rating development, see section 5.5.1) is therefore an indicator regarding the latent variable 'SME rating focus'. This includes knowing the rating approach a bank applies (Knowing bank rating approach, see section 5.5.1) in order 'to play the game' best. According to authors like Plankensteiner and Zimmermann (2007) knowledge about one's own rating is still poor.

Company potential areas

> Judgement regarding potential areas which are used in Basel II Ratings:

- profitability (in relation to sector average)
- financial situation (equity ratio, liquidity, in relation to sector average)
- management
- research & development
- production & logistics
- marketing & sales
- controlling & administration

➔ *Justification in relation to hypothesis/research question:*

The main clusters of the 'soft factors' rating elements (Nagl, 2003) are taken as they serve as indicator (see section 5.5.1) for the latent variable 'SME rating focus' in combination with the hard financial related factors (mentioned above and below).

Financial performance parameter

> Financial performance parameter:
  - rating development (see above)
  - profitability (EBIT ratio)
  - equity ratio (equity to total capital employed)
  - height of overdraft
  - development of credit rates
  - application for a loan which was not accepted

➔ *Justification in relation to hypothesis/research question:*

A sub-set of financial performance parameters which determine rating (see above) financial performance and credit / credit rate development (changes in credit related issues, see section 5.4.1) are used for the following reasons: more sophisticated issues such as free cash flow would not be easily answered by SMEs and could lead to respondent-centred threats to validity (Sue and Ritter, 2007:39). In a comprehensive study Schindlbeck and Diringer (2007) found that strategic controlling was still lacking within SMEs. In support of the background gathering phase, EBIT and equity ratio as well as height of overdraft were taken as indicators regarding overall financial performance (changes in credit related issues). Thus supporting Frey and Kuhn's (2007) notion that SMEs rely on 'internal sources of finance' next to bank loans. These are manifest variables regarding the latent variables 'ease of getting a loan' as a tight liquidity or increasing payment periods are indicators for a more difficult lending situation according to Euler Hermes (2004). Supply outpaces demand as described by Reize (2007:145) so that SMEs have to rely on overdrafts rather than other adequate means of finance in terms of alignment (for example, length of investment appreciation in line with length of credit contract).

General effect of Basel II

> General Basel II effect on credits

> General Basel II effect on non-bank financing

> General importance of external effects on financing:

- Basel II
- Subprime crisis
- problems of investment banks
- problems of state owned SME banks

➔ *Justification in relation to hypothesis/research question:*

These broad brush questions serve as a kind of 'control questions' regarding the various related questions which evaluate the effect of Basel II regarding particular manifest variables.

B.4 Manifest Variables Financiers

The manifest (dependent) variables regarding research unit financiers are:

Company background

General focus on SMEs, shift in financing focus of non-bank financiers

> Non-financial characteristics which provide basic information about the sample characteristic:

- size (number of employees, funds volume)
- years of existence
- regional focus

➔ *Justification in relation to hypothesis/research question:*

The introductory building block of the financier questionnaire is similar to the respective paragraph in the SMEs counterpart. As no consistent picture regarding the effect of Basel II on SME financing emerged in general, it is of interest how the participating financiers are distributed regarding:

- size of financier (as indication of the number of companies to be financed)

- longitude of investment (in order to assess if the financier has been active before the Basel II discussion emerged)
- funds under management
- regional investment focus

Elements like 'regional focus' are an indicator regarding 'investment attitude regarding SMEs' as SME affinity is in general related to a smaller regional scope according to the background gathering phase.

Changes in provision of financial instruments

> Investment focus in the past and in the future regarding:

- sources of financing provided
- investment phase supported
- sector supported
- company-specific financial parameter (revenues, EBIT)

➔ *Justification in relation to hypothesis/research question:*

A broadening portfolio regarding 'sources of financing provided' and 'phases and sector supported', are indicators for: 'ease-of-getting a loan' as non-bank financiers fill the gap left by banks (changes in provision of financial instruments, see section 5.4.2) and a favourable 'investment attitude regarding SMEs' (shift in financing focus of non-bank financiers, see section 5.6.2).

The same sector classification is used in the financier and SME questionnaire (see section B.3). The size range (general focus on SME, see 5.6.2) reflects the latent variable 'investment attitude regarding SMEs' as a focus on small enterprises and medium enterprises rather than micro enterprises or large enterprises is regarded as the most successful focus according to authors like Gregory *et al* (2005) or Frey and Kuhn (2007) as explained in section 3.3.

Sources of SME financing from a financiers' perspective

> (Estimated) finance sources in the past compared to preferences in the future:
  - retained earnings
  - share holder (equity/loan)
  - bank credit
  - SME subsidies
  - supplier credit
  - leasing
  - factoring
  - mezzanine
  - securities (ABS)
  - private equity
  - strategic investor
  - IPO (e.g. entry standard)

➔ *Justification in relation to hypothesis/research question:*

This manifest variable corresponds to the respective manifest variable in the SME questionnaires (see section B.3). As mentioned above, changes in financing behaviour is an indicator for the latent variable 'ease of getting a loan' (usage of credits, related to bank credits and subsidised credits, see section 5.4.2), and 'changes in affinity to banks and non-bank financiers' and 'willingness for incorporating new non-bank financiers' if the focus changes from the Pre- to the Post-Basel II era (see section 5.4.2).

Investment criteria

> Investment criteria of financiers:
  - financial stability in the past (equity ratio, liquidity etc)
  - good market position
  - leading edge products/technology
  - good comparative cost position in relation to competitors
  - ambitious management regarding company valuation

- strong financial management
- future growth options
- willingness of shareholders to incorporate new non-bank financiers with respective rights

➔ *Justification in relation to hypothesis/research question:*

The latent variable 'investment criteria' corresponds to the respective manifest variable in the SME questionnaire where SMEs are asked to judge the non-bank financiers' investment criteria (see section B.3). It is an indicator for 'investment attitude regarding SMEs' as it determines this latent variable straightforwardly. In combination with the respective findings from the SME questionnaire, 'investment criteria of non-bank financiers' (see section 5.6.2) serve as indicators regarding the latent variable 'business vision for gaining / enhancing USPs'.

Credit rejection criteria

> Estimated general rejection criteria regarding loans:
- reduction of credits to SMEs in general
- poor sector outlook

> Estimated company specific rejection criteria regarding loans:
- poor market position compared to competitors
- profitability in the past
- financial situation in the past (equity ratio, liquidity, etc)
- insufficient securities/liabilities
- unfavourable outlook (revenues, earnings, etc.)
- quality of management team
- differences in assessment of company strategy
- personal friction between company management and banker

➔ *Justification in relation to hypothesis/research question:*

Again, the manifest variable 'credit rejection criteria by banks' corresponds to the respective manifest variable in the SME questionnaire (see section B.3), where SMEs are asked to estimate the rejection criteria of banks.

Alike, it is an indicator regarding the latent variable ‘ease of getting a loan’ (see section 5.4.2).

Importance of non-bank financiers as information sources

> Information sources regarding SME corporate financing:
  - banks
  - non-bank financiers (like private equity)
  - chartered accountants
  - Chamber of Commerce
  - trade press/internet

Justification in relation to hypothesis/research question:

As discussed in section B.3 the latent variables ‘investment attitude regarding SMEs’ manifest in the importance of non-bank financiers as information sources in relation to other typical information sources like banks. If the non-bank financiers regard themselves as important (in comparison to the SMEs’ assessment this is an indicator regarding a growing affinity towards SME finance (see section 5.6.2).

General effect of Basel II

> General Basel II effect on credits

> General Basel II effect on non-bank financing

> General importance of external effects on financing:
  - Basel II
  - Subprime crisis
  - problems of investment banks
  - problems of state owned SME banks

➔ *Justification in relation to hypothesis/research question:*

Again, this broad brush question serves as a ‘control question’ regarding the various related questions which evaluate the effect of Basel II regarding particular manifest variables.

Appendix C Questionnaires

SME Questionnaire

Questionnaire: Effect of Basel II on SME financing

GVM >

UNIVERSITY OF BRADFORD

Please use the enclosed envelope for postal return free of charge or send a fax to: 08141 / 88 90 – 42

Bernhard Schmid
Käthe-Vollath-Weg 17

82223 Eichenau

Study: Effect of Basel II on SME financing

General remarks: There are no right or wrong answers: If at all possible, it is important that you answer all questions in order to ensure a high validity of the study. However, if you do not want to answer a specific question there will be no disadvantage for you. Your data will only be used for the evaluation of the questionnaires. Data will be treated as highly confidential and will be destroyed straight after the research is completed. In addition, you can take part anonymously. In this case leave the address field blank and send us a short notice with a certain time by which you want to get the research findings via: Fax: 08141 / 88 90 42 or Bernhard_Schmid@t-online.de.
If you have any questions please do not hesitate to give me a call: ***Bernhard Schmid, T. (08141) 889039***

1. Company Facts

Address for sending back the participant's gift and the findings of the survey.
(In case of anonymous participation please do not enter anything here!)

Name _____
Company _____
Street _____
Post Code _____ _____

In which year was your company founded? _____
In which German state is your head office? _____

Which sector does your company belong to?
(Please tick the sector to which your main business belongs, tick only one)

❑ Plant / Mach. Industry	❑ Automotive	❑ General Industry	❑ MedTech / BioTech
❑ ITK, Media, High-Tec	❑ Chemicals / Pharma	❑ Building/Construction	❑ Food
❑ Consumer Goods	❑ Energy / Water	❑ Retail / Trade	❑ Financial Serv. Ind.
❑ Logistics / Traffic	❑ Consulting / Services	❑ Agriculture / Mining	❑ no answer

Company size: How high is your revenue? How many employees do you employ?

Total revenue:	_____ Mio. € in 2006	_____ Mio. € in 2007	_____ Mio. in € 2008(e)
Total employees:	_____ in 2006	_____ in 2007	_____ in 2008(e)

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2. Influencing factor: SME financing

According to your opinion, what importance do the following incidents have on the financing of German SMEs?

Importance of ...	no Importance	low Importance	medium Importance	(very) high importance
... Basel II	❑	❑	❑	❑
... subprime crises	❑	❑	❑	❑
... problems of investment banks	❑	❑	❑	❑
... problems of state owned SME banks	❑	❑	❑	❑
... others (please name) _____	❑	❑	❑	❑

3. Strategic Focus

How do you assess the importance of the following strategic elements in the past (prior to Basel II, i.e. prior to 2007 / 2008) and in the future (next two years)?

	Importance in the past				Importance in the future			
Focus on ...	no importance	low	medium	high	no importance	low	medium	high
... financial stability / liquidity	❑	❑	❑	❑	❑	❑	❑	❑
... increasing profitability	❑	❑	❑	❑	❑	❑	❑	❑
... enhancing market position	❑	❑	❑	❑	❑	❑	❑	❑
... quality excellence	❑	❑	❑	❑	❑	❑	❑	❑
... technology excellence	❑	❑	❑	❑	❑	❑	❑	❑
... cost excellence	❑	❑	❑	❑	❑	❑	❑	❑
... increasing company valuation	❑	❑	❑	❑	❑	❑	❑	❑
... others (please name) _____	❑	❑	❑	❑	❑	❑	❑	❑

How important is Basel II regarding the changes in your future strategic focus?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

4. Sources of Financing

How do you assess the usage of the following sources of financing in the past (prior to Basel II, i.e. 2007 / 2008) and in the future (next two years)?

Usage of financing options:	Usage in the past				Usage in the future			
	never	once	some-times	often	never	once	some-times	often
Retained earnings	❑	❑	❑	❑	❑	❑	❑	❑
Shareholder (equity / loan)	❑	❑	❑	❑	❑	❑	❑	❑
Bank credit	❑	❑	❑	❑	❑	❑	❑	❑
SME subsidies	❑	❑	❑	❑	❑	❑	❑	❑
Supplier credit	❑	❑	❑	❑	❑	❑	❑	❑
Leasing	❑	❑	❑	❑	❑	❑	❑	❑
Factoring	❑	❑	❑	❑	❑	❑	❑	❑
Mezzanine	❑	❑	❑	❑	❑	❑	❑	❑
Securities (ABS)	❑	❑	❑	❑	❑	❑	❑	❑
Private equity	❑	❑	❑	❑	❑	❑	❑	❑
Strategic investor	❑	❑	❑	❑	❑	❑	❑	❑
IPO (e. g. entry standard)	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

Which importance has Basel II regarding you assessment of the future usage of financing options?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

5. Financing via Non-bank Financiers

Due to Basel II SME financing via non-bank financiers will be …	much easier	a bit easier	a bit more difficult	much more difficult
	❑	❑	❑	❑

How do you assess the importance of the following investment criteria of non-bank investors in the past (prior to Basel II, i.e. prior to 2007 / 2008) and in the future (next two years)?

	Importance in the past				Importance in the future			
Investment criteria of (non-bank) financiers	no importance	low	medium	high	no importance	low	medium	high
Financial stability in the past (equity ratio, liquidity …)	❑	❑	❑	❑	❑	❑	❑	❑
Good market position	❑	❑	❑	❑	❑	❑	❑	❑
Leading edge products/technology	❑	❑	❑	❑	❑	❑	❑	❑
Good comparative cost position in relation to competitors	❑	❑	❑	❑	❑	❑	❑	❑
Ambitious management regarding company valuation	❑	❑	❑	❑	❑	❑	❑	❑
Strong financial management	❑	❑	❑	❑	❑	❑	❑	❑
Future growth options	❑	❑	❑	❑	❑	❑	❑	❑
Willingness of shareholders to incorporate new investors with respective rights	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

How important is Basel II according to your opinion regarding future investment criteria of non-bank financiers?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

6. SME Financing via Banks

Due to Basel II SME financing via banks will be ...	much easier	a bit easier	a bit more difficult	much more difficult
	❑	❑	❑	❑

How do you assess the rejection criteria of bank credits regarding SMEs in the past (prior to Basel II, i.e. prior to 2007 / 2008) and in the future (next two years)?

	Importance in the past				Importance in the future			
Rejection criteria regarding bank credits	no importance	low	medium	high	no importance	low	medium	high
Reduction of credits to SMEs in general	❑	❑	❑	❑	❑	❑	❑	❑
Poor sector outlook	❑	❑	❑	❑	❑	❑	❑	❑
Poor market position compared to competitors	❑	❑	❑	❑	❑	❑	❑	❑
Profitability in the past	❑	❑	❑	❑	❑	❑	❑	❑
Financial situation in the past (equity ratio, liquidity, ...)	❑	❑	❑	❑	❑	❑	❑	❑
Insufficient securities / liabilities	❑	❑	❑	❑	❑	❑	❑	❑
Unfavourable outlook (revenues, earnings, ...)	❑	❑	❑	❑	❑	❑	❑	❑
Quality of management team	❑	❑	❑	❑	❑	❑	❑	❑
Differences in assessment of company strategy	❑	❑	❑	❑	❑	❑	❑	❑
Personal friction between company management and banker	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name):	❑	❑	❑	❑	❑	❑	❑	❑

7. Own Financial Performance and Financing Strategy

Which roles do the following information sources play regarding financing options?

Importance of information source regarding SME financing	no importance	low importance	medium importance	(very) high importance
Banks	❑	❑	❑	❑
Non-bank financiers (like private equity)	❑	❑	❑	❑
Chartered accountants	❑	❑	❑	❑
Chamber of Commerce	❑	❑	❑	❑
Trade press / Internet	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑

How do you assess the current potential of your companies and what would you like to improve in the future?

	Current Potential				Potential for Optimisation			
Potential of your company	(very) low	rather low	rather high	(very) high	(very) low	rather low	rather high	(very) high
Profitability (in rel. to sector avg.)	❑	❑	❑	❑	❑	❑	❑	❑
Financial situation (equity ratio, liqu., in rel. to sector avg.)	❑	❑	❑	❑	❑	❑	❑	❑
Management	❑	❑	❑	❑	❑	❑	❑	❑
Research & Development	❑	❑	❑	❑	❑	❑	❑	❑
Production & Logistics	❑	❑	❑	❑	❑	❑	❑	❑
Marketing & Sales	❑	❑	❑	❑	❑	❑	❑	❑
Controlling & Administration	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

Which influence does Basel II have on the future potential focus direction of your company?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

Which approach to assess credit risks (rating) does your bank use?

❑ Standard model ❑ IRB Basic-approach ❑ IRB Advanced-approach ❑ not known

How do you rate your <u>current performance</u>, <u>your past performance</u> (prior to Basel II, i.e. prior to 2007/8) and your <u>future performance</u> (in the next two years)?

		The value <u>In the past</u> was …			The value <u>in the future</u> will probably be …		
	Current value	**lower**	**equal**	**higher**	**lower**	**equal**	**higher**
No. of employees finance department	____ persons	❑	❑	❑	❑	❑	❑
No. of phone calls with bank manager p. year	____ times p. a.	❑	❑	❑	❑	❑	❑
No. of meetings with bank manager p. year	____ times p. a.	❑	❑	❑	❑	❑	❑
Rating value	____ rating ❑ not known ❑ not rated	❑	❑	❑	❑	❑	❑
EBIT ration (pre-tax profit / revenue)	____ %	❑	❑	❑	❑	❑	❑
Equity ratio	____ %	❑	❑	❑	❑	❑	❑
Height of overdraft (in % of revenue)	____ %	❑	❑	❑	❑	❑	❑
Development of credit rates		❑	❑	❑	❑	❑	❑
No. of credit application rejections	____ times ❑ no answer	❑	❑	❑	❑	❑	❑

Thank you again for filling out the questionnaire. If you do have any further questions please do not hesitate to contact me: Bernhard Schmid: Tel. 081 41 / 88 90 – 42.

Convenient sending back of the questionnaire:

- **Please use the enclosed return envelope for sending back free of charge (Bernhard Schmid, Käthe-Vollath-Weg 17, 82223 Eichenau)**
- **Or just fax the questionnaire to: (08141) 88 90 - 42**

Financier Questionnaire

Questionnaire: Effect of Basel II on SME financing

GVM > UNIVERSITY OF BRADFORD

Please use the enclosed envelope for postal return free of charge or send a fax to: 08141 / 88 90 – 42

Bernhard Schmid
Käthe-Vollath-Weg 17

82223 Eichenau

Study: Effect of Basel II on SME financing

General remarks: There are no right or wrong answers: If at all possible, it is important that you answer all questions in order to ensure a high validity of the study. However, if you do not want to answer a specific question there will be no disadvantage for you. Your data will only be used for the evaluation of the questionnaires. Data will be treated as highly confidential and will be destroyed straight after the research is completed. In addition, you can take part anonymously. In this case leave the address field blank and send us a short notice with a certain time in which you want to get the research findings via: Fax: 08141 / 88 90 42 or Bernhard_Schmid@t-online.de.
*If you have any questions please do not hesitate to give me a call: **Bernhard Schmid, T. (08141) 889039***

1. Company Facts

Address for sending back the participant's gift and the findings of the survey.
(In case of anonymous participation please do not enter anything here!)

Name _____
Company _____
Street _____
Post Code _____ _____

How many employees do you have? _____

What year did your company become active in Germany? _____

How high are the funds under management related to Germany?

_____ Mio. in 2006 _____ Mio. in 2007 _____ Mio. in 2008 (e)

What is the geographic financing / investment focus of your company?

❑ German State ❑ Germany ❑ Europe ❑ Worldwide

_____

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2. Financing Focus

Means of Financing / Investment Focus (in the Past / Future)

Which sources of finance did you offer in the last three years?

❑ Credits ❑ Subsidies ❑ Leasing ❑ Factoring
❑ Mezzanine ❑ Securities (ABS) ❑ Equity
❑ Others (please name): _____

Which sources of finance will you offer in the next two years?

❑ Credits ❑ Subsidies ❑ Leasing ❑ Factoring
❑ Mezzanine ❑ Securities (ABS) ❑ Equity
❑ Others (please name): _____

What importance does Basel II have regarding your financing sources offered in the future?	no importance	low importance	medium Importance	(very) high importance
	❑	❑	❑	❑

Phase-related Financing / Investment Focus (in the Past / Future)

What has been your phase related financing / investment focus in the past three years?
(You can tick more than one phase)

❑ No preference ❑ Seed financing ❑ Growth financing ❑ Working Capital fin.
❑ MBO / MBI ❑ Buy-out financing ❑ Turn-around finance. ❑ Others _____

What will be your phase related financing / investment focus in the next two years?
(You can tick more than one phase)

❑ No preference ❑ Seed financing ❑ Growth financing ❑ Working Capital fin.
❑ MBO / MBI ❑ Buy-out financing ❑ Turn-around finance. ❑ Others _____

What importance does Basel II have regarding your future financing / investment phases supported?	no importance	low importance	medium Importance	(very) high importance
	❑	❑	❑	❑

Questionnaire: Effect of Basel II on SME financing

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Sector-related Financing / Investment Focus (in the Past / Future)

What has been your sector related financing / investment focus in the past three years?
(You can tick more than one sector)

❑ Plant / Mach. Industry	❑ Automotive	❑ General Industry	❑ MedTech / BioTech
❑ ITK, Media, High-Tec.	❑ Chemicals / Pharma	❑ Building/Construction	❑ Food
❑ Consumer Goods	❑ Energy / Water	❑ Retail / Trade	❑ Financial Serv. Ind.
❑ Logistics / Traffic	❑ Consulting / Services	❑ Agriculture / Mining	❑ No answer

What will be your sector related financing / investment focus in the next two years?
(You can tick more than one sector)

❑ Plant / Mach. Industry	❑ Automotive	❑ General Industry	❑ MedTech / BioTech
❑ ITK, Media, High-Tec.	❑ Chemicals / Pharma	❑ Building/Construction	❑ Food
❑ Consumer Goods	❑ Energy / Water	❑ Retail / Trade	❑ Financial Serv. Ind.
❑ Logistics / Traffic	❑ Consulting / Services	❑ Agriculture / Mining	❑ No answer

What importance does Basel II have regarding your sector-related financing / investment focus in the future?

no importance	low importance	medium Importance	(very) high importance
❑	❑	❑	❑

Financial Parameter-related Financing / Investment Focus (in the Past / Future)

What has been your company related financing/investment focus in the last three years?

Sweetspot regarding revenue ❑ not relevant from ____ Mio. Euro to ____ Mio. Euro

Sweetspot regarding EBIT ❑ not relevant from ____ Mio. Euro to ____ Mio. Euro

What will be your company related financing/investment focus in the next two years?
(e. g. when you launch new financing or investment products)

Sweetspot regarding revenue ❑ not relevant from ____ Mio. Euro to ____ Mio. Euro

Sweetspot regarding EBIT ❑ not relevant from ____ Mio. Euro to ____ Mio. Euro

What importance does Basel II have regarding your company-related financing / investment focus in the future?

no importance	low importance	medium Importance	(very) high importance
❑	❑	❑	❑

3. Influencing Factors and General Effects on SME Financing

General Effects on SME Financing

According to your opinion, what importance do have the following incidents on the financing of German SMEs?

Importance of ...	no Importance	low Importance	medium Importance	(very) high importance
... Basel II	❑	❑	❑	❑
... subprime crises	❑	❑	❑	❑
... problems of investment banks	❑	❑	❑	❑
... problems of state owned SME banks	❑	❑	❑	❑
... others (please name) _____	❑	❑	❑	❑

What roles do the following information sources play regarding financing options?

Importance of information source regarding SME financing	no importance	low importance	medium importance	(very) high importance
Banks	❑	❑	❑	❑
Non-bank financiers (like private equity)	❑	❑	❑	❑
Chartered accountants	❑	❑	❑	❑
Chamber of Commerce	❑	❑	❑	❑
Trade press / Internet	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑

Effect of Basel II regarding SME financing

Due to Basel II ...	much easier	a bit easier	a bit more difficult	much more difficult
... SME credit financing via banks will be	❑	❑	❑	❑
... SME financing via non-bank financiers will be	❑	❑	❑	❑

4. Corporate Financing of SMEs

Financing preferences of SMEs

How do you assess the financing preferences of SMEs in the past (prior to Basel II, i.e. prior to 2007/2008) and in the future?

Usage of financing options:	Usage in the past				Usage in the future			
	never	once	some-times	often	never	once	some-times	often
Retained earnings	❑	❑	❑	❑	❑	❑	❑	❑
Share holder (equity / loan)	❑	❑	❑	❑	❑	❑	❑	❑
Bank credit	❑	❑	❑	❑	❑	❑	❑	❑
SME subsidies	❑	❑	❑	❑	❑	❑	❑	❑
Supplier credit	❑	❑	❑	❑	❑	❑	❑	❑
Leasing	❑	❑	❑	❑	❑	❑	❑	❑
Factoring	❑	❑	❑	❑	❑	❑	❑	❑
Mezzanine	❑	❑	❑	❑	❑	❑	❑	❑
Securities (ABS)	❑	❑	❑	❑	❑	❑	❑	❑
Private equity	❑	❑	❑	❑	❑	❑	❑	❑
Strategic investor	❑	❑	❑	❑	❑	❑	❑	❑
IPO (e. g. entry standard)	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

What importance has Basel II regarding your assessment of future financing preferences of SMEs?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

Rejection criteria regarding the granting of credits

How do you assess the rejection criteria of bank credits regarding SMEs in the past (prior to Basel II, i.e. prior to 2007/2008) and in the future (next two years)?

Rejection criteria regarding bank credits	Importance in the past				Importance in the future			
	no importance	low	medium	high	no importance	low	medium	high
Reduction of credits to SMEs in general	❑	❑	❑	❑	❑	❑	❑	❑
Poor sector outlook	❑	❑	❑	❑	❑	❑	❑	❑
Poor market position compared to competitors	❑	❑	❑	❑	❑	❑	❑	❑
Profitability in the past	❑	❑	❑	❑	❑	❑	❑	❑
Financial situation in the past (equity ratio, liquidity, …)	❑	❑	❑	❑	❑	❑	❑	❑
Insufficient securities / liabilities	❑	❑	❑	❑	❑	❑	❑	❑
Unfavourable outlook (revenues, earnings, …)	❑	❑	❑	❑	❑	❑	❑	❑
Quality of management team	❑	❑	❑	❑	❑	❑	❑	❑
Differences in assessment of company strategy	❑	❑	❑	❑	❑	❑	❑	❑
Personal friction between company management and banker	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

What importance has Basel II regarding your assessment of future rejection criteria regarding SMEs credits applications?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

Company specific financing / investment criteria

How do you assess the importance of the following investment criteria regarding your financing / investment decisions in the past (prior to Basel II, i.e. prior to 2007/2008) and in the future (next two years)?

Investment criteria of (non-bank) financiers	Importance in the past				Importance in the future			
	no importance	low	medium	high	no importance	low	medium	high
Financial stability in the past (equity ratio, liquidity …)	❑	❑	❑	❑	❑	❑	❑	❑
Good market position	❑	❑	❑	❑	❑	❑	❑	❑
Leading edge products/technology	❑	❑	❑	❑	❑	❑	❑	❑
Good comparative cost position in relation to competitors	❑	❑	❑	❑	❑	❑	❑	❑
Ambitious management regarding company valuation	❑	❑	❑	❑	❑	❑	❑	❑
Strong financial management	❑	❑	❑	❑	❑	❑	❑	❑
Future growth options	❑	❑	❑	❑	❑	❑	❑	❑
Willingness of shareholders to incorporate new investors with respective rights	❑	❑	❑	❑	❑	❑	❑	❑
Others (please name): _____	❑	❑	❑	❑	❑	❑	❑	❑

How important is Basel II regarding your assessment of future investment criteria?	no importance	low importance	medium importance	(very) high importance
	❑	❑	❑	❑

Thank you again for filling out the questionnaire. If you do have any further questions please do not hesitate to contact me: Bernhard Schmid, Tel. 081 41 / 88 90 – 42.

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Appendix D Codebook Quantitative Analysis

SME codebook

Question module No.	Question description	Question No.	Item description	Variable
1	Company facts	1	Company age	$X_1^{SME,1}$
1	Company facts	2	Sector	$X_2^{SME,1}$
1	Company facts	3	Revenue 2006	$X_3^{SME,1}$
1	Company facts	4	Revenue 2007	$X_4^{SME,1}$
1	Company facts	5	Revenue 2008	$X_5^{SME,1}$
1	Company facts	6	Employees 2006	$X_6^{SME,1}$
1	Company facts	7	Employees 2007	$X_7^{SME,1}$
1	Company facts	8	Employees 2008	$X_8^{SME,1}$
2	Influencing factor: SME financing	1	Importance of … Basel II	$X_1^{SME,2}$
2	Influencing factor: SME financing	2	… subprime crises	$X_2^{SME,2}$
2	Influencing factor: SME financing	3	… investment banks	$X_3^{SME,2}$
2	Influencing factor: SME financing	4	… state owned banks	$X_4^{SME,2}$
3	Strategic focus	1	Focus on … fin. stability / liquidity	$X_{1,p/f}^{SME,3}$
3	Strategic focus	2	… increasing profitability	$X_{2,p/f}^{SME,3}$
3	Strategic focus	3	… enhancing market position	$X_{3,p/f}^{SME,3}$
3	Strategic focus	4	… quality excellence	$X_{4,p/f}^{SME,3}$
3	Strategic focus	5	… technology excellence	$X_{5,p/f}^{SME,3}$
3	Strategic focus	6	… cost excellence	$X_{6,p/f}^{SME,3}$

3	Strategic focus	7	… increasing company valuation	$X_{7,p/f}^{SME,3}$
3	Strategic focus	8	Importance of Basel II reg. strategic company focus	$X_{8}^{SME,3}$
4	Sources of finance	1	Usage of ... retained earnings	$X_{1,p/f}^{SME,4}$
4	Sources of finance	2	... shareholder (equity / loan)	$X_{2,p/f}^{SME,4}$
4	Sources of finance	3	... bank credit	$X_{3,p/f}^{SME,4}$
4	Sources of finance	4	... SME subsidies	$X_{4,p/f}^{SME,4}$
4	Sources of finance	5	... supplier credit	$X_{5,p/f}^{SME,4}$
4	Sources of finance	6	... leasing	$X_{6,p/f}^{SME,4}$
4	Sources of finance	7	... factoring	$X_{7,p/f}^{SME,4}$
4	Sources of finance	8	... mezzanine	$X_{8,p/f}^{SME,4}$
4	Sources of finance	9	... securities (ABS)	$X_{9,p/f}^{SME,4}$
4	Sources of finance	10	... private equity	$X_{10,p/f}^{SME,4}$
4	Sources of finance	11	... strategic investor	$X_{11,p/f}^{SME,4}$
4	Sources of finance	12	... IPO (e. g. entry standard)	$X_{12,p/f}^{SME,4}$
4	Sources of finance	13	Importance of Basel II regarding fin. sources	$X_{13}^{SME,4}$
5	Non-bank financing	1	Effect of Basel II on non-bank financing	$X_{1}^{SME,5}$
5	Non-bank financing	2	Inv. criteria … fin. stability	$X_{2,p/f}^{SME,5}$
5	Non-bank financing	3	... good market position	$X_{3,p/f}^{SME,5}$
5	Non-bank financing	4	... leading edge products/technology	$X_{4,p/f}^{SME,5}$
5	Non-bank financing	5	... cost position	$X_{5,p/f}^{SME,5}$
5	Non-bank financing	6	... company mgmt.	$X_{6,p/f}^{SME,5}$
5	Non-bank financing	7	... strong financial management	$X_{7,p/f}^{SME,5}$

5	Non-bank financing	8	... future growth options	$X_{8,p/f}^{SME,5}$
5	Non-bank financing	9	... willingness to incorporate new investors	$X_{9,p/f}^{SME,5}$
5	Non-bank financing	10	Importance of Basel II reg. inv. criteria of non-Bank fin.	$X_{10}^{SME,5}$
6	Bank credit financing	1	Effect of Basel II on bank credit financing	$X_{1}^{SME,6}$
6	Bank credit financing	2	Credit rejection criteria: … SME in general	$X_{2,p/f}^{SME,6}$
6	Bank credit financing	3	... poor sector outlook	$X_{3,p/f}^{SME,6}$
6	Bank credit financing	4	... poor market position	$X_{4,p/f}^{SME,6}$
6	Bank credit financing	5	... profitability in the past	$X_{5,p/f}^{SME,6}$
6	Bank credit financing	6	... financial situation in the past	$X_{6,p/f}^{SME,6}$
6	Bank credit financing	7	... insufficient securities/liabilities	$X_{7,p/f}^{SME,6}$
6	Bank credit financing	8	... unfavourable outlook	$X_{8,p/f}^{SME,6}$
6	Bank credit financing	9	... quality of management team	$X_{9,p/f}^{SME,6}$
6	Bank credit financing	10	... differences in the assessment of strategy	$X_{10,p/f}^{SME,6}$
6	Bank credit financing	11	... personal friction	$X_{11,p/f}^{SME,6}$
7	Information Source	1	Importance as info source … banks	$X_{1}^{SME,7}$
7	Information Source	2	... non-bank financiers	$X_{2}^{SME,7}$
7	Information Source	3	... chartered accountants	$X_{3}^{SME,7}$
7	Information Source	4	... chamber of commerce	$X_{4}^{SME,7}$
7	Information Source	5	... trade press / internet	$X_{5}^{SME,7}$
8	Company Potential	1	Company potential: … profit	$X_{1,p/f}^{SME,8}$
8	Company Potential	2	... financial situation	$X_{2,p/f}^{SME,8}$
8	Company Potential	3	... management	$X_{3,p/f}^{SME,8}$

8	Company Potential	4	... research & development	$X_{4,p/f}^{SME,8}$
8	Company Potential	5	... production & logistics	$X_{5,p/f}^{SME,8}$
8	Company Potential	6	... marketing & sales	$X_{6,p/f}^{SME,8}$
8	Company Potential	7	... controlling & administration	$X_{7,p/f}^{SME,8}$
8	Company Potential	8	Importance of Basel II regarding company potential	$X_{8}^{SME,8}$
9	Financial management	1	Credit risk approach of bank	$X_{1}^{SME,9}$
9	Financial management	2	No. employees in the financial department	$X_{2}^{SME,9}$
9	Financial management	3	Development of no. employees financial department	$X_{3,p/f}^{SME,9}$
9	Financial management	4	No. phone calls	$X_{4}^{SME,9}$
9	Financial management	5	Develop. of No. of phone calls	$X_{5,p/f}^{SME,9}$
9	Financial management	6	No. of meetings	$X_{6}^{SME,9}$
9	Financial management	7	Development of No. of meetings	$X_{7,p/f}^{SME,9}$
9	Financial management	8	Rating value	$X_{8}^{SME,9}$
9	Financial management	9	Development of rating value	$X_{9,p/f}^{SME,9}$
9	Financial management	10	EBIT ratio	$X_{10}^{SME,9}$
9	Financial management	11	Development of EBIT ratio	$X_{11,p/f}^{SME,9}$
9	Financial management	12	Equity ratio	$X_{12}^{SME,9}$
9	Financial management	13	Development of equity ratio	$X_{13,p/f}^{SME,9}$
9	Financial management	14	Overdraft	$X_{14}^{SME,9}$
9	Financial management	15	Development of overdraft	$X_{15,p/f}^{SME,9}$
9	Financial management	16	Development of credit rates	$X_{16,p/f}^{SME,9}$

9	Financial management	17	No. of credit declines	$X_{17}^{SME,9}$
9	Financial management	18	Development of credit declines	$X_{18,p/f}^{SME,9}$
I1	Average employees	1	Arithmetic average employees 2006 – 2008	$X_{1}^{SME,I1}$
I2	Average revenue	1	Arithmetic average revenue 2006 – 2008	$X_{1}^{SME,I2}$
I3	Average importance of non-credit sources of finance	1	Arithmetic average of $X_{5,p/f}^{SME,4}$ to $X_{12,p/f}^{SME,4}$	$X_{1,f/p}^{SME,I3}$
I4	Average generic rejection criteria regarding bank credits	1	Arithmetic average of $X_{2,p/f}^{SME,6}$ and $X_{3,p/f}^{SME,6}$	$X_{1,f/p}^{SME,I4}$
I5	Average SME rating potential	1	Arithmetic average of $X_{1,p/f}^{SME,8}$ to $X_{7,p/f}^{SME,8}$	$X_{1,f/p}^{SME,I5}$

Table 48 Codebook SME questionnaire

Financier codebook

Question module No.	Question description	Question No.	Item description	Variable
1	Company facts	1	No. of employees	$X_{1}^{FIN,1}$
1	Company facts	2	Years of activities in Germany	$X_{2}^{FIN,1}$
1	Company facts	3	Funds under mgmt. 2006	$X_{3}^{FIN,1}$
1	Company facts	4	Funds under mgmt. 2007	$X_{4}^{FIN,1}$
1	Company facts	5	Funds under mgmt. 2008	$X_{5}^{FIN,1}$
1	Company facts	6	Geographic focus: German State	$X_{6}^{FIN,1}$
1	Company facts	7	Geographic focus: Germany	$X_{7}^{FIN,1}$

1	Company facts	8	Geographic focus: Europe	$X_8^{FIN,1}$
1	Company facts	9	Geographic focus: worldwide	$X_9^{FIN,1}$
2	Financing focus	1	Sources focus on … Credits	$X_{1,p/f}^{FIN,2}$
2	Financing focus	2	… Subsidies	$X_{2,p/f}^{FIN,2}$
2	Financing focus	3	… Leasing	$X_{3,p/f}^{FIN,2}$
2	Financing focus	4	… Factoring	$X_{4,p/f}^{FIN,2}$
2	Financing focus	5	… Mezzanine	$X_{5,p/f}^{FIN,2}$
2	Financing focus	6	… Securities (ABS)	$X_{6,p/f}^{FIN,2}$
2	Financing focus	7	… Equity	$X_{7,p/f}^{FIN,2}$
2	Financing focus	8	Importance of Basel II regarding sources provided	$X_8^{FIN,2}$
2	Financing focus	9	Phase focus on … no preference	$X_{9,p/f}^{FIN,2}$
2	Financing focus	10	… Seed financing	$X_{10,p/f}^{FIN,2}$
2	Financing focus	11	… Growth financing	$X_{11,p/f}^{FIN,2}$
2	Financing focus	12	… Working Capital financing	$X_{12,p/f}^{FIN,2}$
2	Financing focus	13	… MBO / MBI	$X_{13,p/f}^{FIN,2}$
2	Financing focus	14	… Buy-out financing	$X_{14,p/f}^{FIN,2}$
2	Financing focus	15	… Turn-around financing	$X_{15,p/f}^{FIN,2}$
2	Financing focus	16	Importance of Basel II regarding phases supported	$X_{16}^{FIN,2}$
2	Financing focus	17	Sector focus on … no preference	$X_{17,p/f}^{FIN,2}$

2	Financing focus	18	… Plant / Machinery Industry	$X_{18,p/f}^{FIN,2}$
2	Financing focus	19	… Automotive	$X_{19,p/f}^{FIN,2}$
2	Financing focus	20	… General Industry	$X_{20,p/f}^{FIN,2}$
2	Financing focus	21	… MedTech / BioTech	$X_{21,p/f}^{FIN,2}$
2	Financing focus	22	… ITK, Media, High-Tec.	$X_{22,p/f}^{FIN,2}$
2	Financing focus	23	… Chemicals / Pharma	$X_{23,p/f}^{FIN,2}$
2	Financing focus	24	… Food	$X_{24,p/f}^{FIN,2}$
2	Financing focus	25	… Building/Construction	$X_{25,p/f}^{FIN,i2b}$
2	Financing focus	26	… Consumer Good	$X_{26,p/f}^{FIN,2}$
2	Financing focus	27	… Energy / Water	$X_{27,p/f}^{FIN,2}$
2	Financing focus	28	… Retail / Trade	$X_{28,p/f}^{FIN,2}$
2	Financing focus	29	… Financial Services Industry	$X_{29,p/f}^{FIN,2}$
2	Financing focus	30	… Logistics / Traffic	$X_{30,p/f}^{FIN,2}$
2	Financing focus	31	… Consulting / Service	$X_{31,p/f}^{FIN,2}$
2	Financing focus	32	… Agriculture / Mining	$X_{32,p/f}^{FIN,2}$
2	Financing focus	33	Importance of Basel II reg. sectors supported	$X_{33}^{FIN,2}$
2	Financing focus	34	Sweetspot EBIT relevance	$X_{34,p/f}^{FIN,2}$
2	Financing focus	35	Sweetspot EBIT minimum	$X_{35,p/f}^{FIN,2}$
2	Financing focus	36	Sweetspot EBIT maximum	$X_{36,p/f}^{FIN,2}$
2	Financing focus	37	Sweetspot revenue relevance	$X_{37,p/f}^{FIN,2}$

2	Financing focus	38	Sweetspot revenue minimum	$X_{38,p/f}^{FIN,2}$
2	Financing focus	39	Sweetspot revenue maximum	$X_{39,p/f}^{FIN,2}$
2	Financing focus	40	Importance of Basel II reg. financial parameter sweetspot	$X_{40}^{FIN,2}$
3	Influencing factor and generic effects	1	Importance of … Basel II	$X_{1}^{FIN,3}$
3	Influencing factor and generic effects	2	… subprime crises	$X_{2}^{FIN,3}$
3	Influencing factor and generic effects	3	… investment banks	$X_{3}^{FIN,3}$
3	Influencing factor and generic effects	4	… state owned banks	$X_{4}^{FIN,3}$
3	Influencing factor and generic effects	5	Importance as info source … banks	$X_{5}^{FIN,3}$
3	Influencing factor and generic effects	6	... non-bank financiers	$X_{6}^{FIN,3}$
3	Influencing factor and generic effects	7	... chartered accountants	$X_{7}^{FIN,3}$
3	Influencing factor and generic effects	8	... chamber of commerce	$X_{8}^{FIN,3}$
3	Influencing factor and generic effects	9	... trade press / internet	$X_{9}^{FIN,3}$
3	Influencing factor and generic effects	10	Effect of Basel II on bank credit financing	$X_{10}^{FIN,3}$
3	Influencing factor and generic effects	11	Effect of Basel II on non-bank financing	$X_{11}^{FIN,3}$
4	Sources of finance	1	Usage of ... retained earnings	$X_{1,p/f}^{FIN,4}$
4	Sources of finance	2	... shareholder (equity / loan)	$X_{2,p/f}^{FIN,4}$
4	Sources of finance	3	... bank credit	$X_{3,p/f}^{FIN,4}$

4	Sources of finance	4	... SME subsidies	$X_{4,p/f}^{FIN,4}$
4	Sources of finance	5	... supplier credit	$X_{5,p/f}^{FIN,4}$
4	Sources of finance	6	... leasing	$X_{6,p/f}^{FIN,4}$
4	Sources of finance	7	... factoring	$X_{7,p/f}^{FIN,4}$
4	Sources of finance	8	... mezzanine	$X_{8,p/f}^{FIN,4}$
4	Sources of finance	9	... securities (ABS)	$X_{9,p/f}^{FIN,4}$
4	Sources of finance	10	... private equity	$X_{10,p/f}^{FIN,4}$
4	Sources of finance	11	... strategic investor	$X_{11,p/f}^{FIN,4}$
4	Sources of finance	12	... IPO (e. g. entry standard)	$X_{12,p/f}^{FIN,4}$
4	Sources of finance	13	Importance of Basel II regarding financing sources	$X_{13}^{FIN,4}$
5	Bank credit financing	1	Credit rejection criteria: … SME in general	$X_{1,p/f}^{FIN,5}$
5	Bank credit financing	2	... poor sector outlook	$X_{2,p/f}^{FIN,5}$
5	Bank credit financing	3	... poor market position	$X_{3,p/f}^{FIN,5}$
5	Bank credit financing	4	... profitability in the past	$X_{4,p/f}^{FIN,5}$
5	Bank credit financing	5	... financial situation in the past	$X_{5,p/f}^{FIN,5}$
5	Bank credit financing	6	... insufficient sec. / liabilities	$X_{6,p/f}^{FIN,5}$
5	Bank credit financing	7	... unfavourable outlook	$X_{7,p/f}^{FIN,5}$
5	Bank credit financing	8	... quality of management team	$X_{8,p/f}^{FIN,5}$
5	Bank credit financing	9	... differences in the assessment of strategy	$X_{9,p/f}^{FIN,5}$

5	Bank credit financing	10	... personal friction	$X_{10,p/f}^{FIN,5}$
5	Bank credit financing	11	Imp. of Basel II reg. credit rejection criteria	$X_{11}^{FIN,5}$
6	Non-bank financing	1	Investment criteria … financial stability	$X_{1,p/f}^{FIN,6}$
6	Non-bank financing	2	... good market position	$X_{2,p/f}^{FIN,6}$
6	Non-bank financing	3	.. leading edge products/tech.	$X_{3,p/f}^{FIN,6}$
6	Non-bank financing	4	... cost position	$X_{4,p/f}^{FIN,6}$
6	Non-bank financing	5	... company mgmt.	$X_{5,p/f}^{FIN,6}$
6	Non-bank financing	6	... strong financial management	$X_{6,p/f}^{FIN,6}$
6	Non-bank financing	7	... future growth options	$X_{7,p/f}^{FIN,6}$
6	Non-bank financing	8	... willingness to inc. new inv.	$X_{8,p/f}^{FIN,6}$
6	Non-bank financing	9	Importance of Basel II reg. inv. criteria of non-bank fin.	$X_{9}^{FIN,6}$
I1	Financing focus	1	Number of sources provided	$X_{1,p/f}^{FIN,I1}$
I2	Financing focus	1	Number of phases supported	$X_{1,p/f}^{FIN,I2}$
I3	Financing focus	1	Number of sectors supported	$X_{1,p/f}^{FIN,I3}$
I4	Average importance of non-credit means of financing	1	Arithmetic average of $X_{5,p/f}^{FIN,4}$ to $X_{12,p/f}^{FIN,4}$	$X_{1,f/p}^{FIN,I4}$
I5	Average generic credit rejection criteria	1	Arithmetic average of $X_{1,p/f}^{FIN,5}$ and $X_{2,p/f}^{FIN,5}$	$X_{1,f/p}^{FIN,I5}$
I6	Average funds volume 2006 – 2008	1	Arithmetic average of $X_{3}^{FIN,1}$ and $X_{5}^{FIN,1}$	$X_{1,f/p}^{FIN,I6}$

Table 49 Codebook financier questionnaire

Appendix E SEMI-STRUCTURED INTERVIEW SCHEDULE

Interview Schedule

The following provides a summary of the semi-structured in-depth interview schedule regarding SMEs and financiers; the financiers' interview schedule is very similar and has therefore not been included as it differs only with regards to the financier specific questions.

Preparation

The preparation follows the structure presented by Saunders *et al* (2007:328):

1. Phone up the interviewee and arrange the interview, in line with best practices, at the site of the interviewee which is normally favoured by interviewees for convenience reasons. Alternative arrangements to be made on request (Saunders *et al*, 2007:327).
2. Provide the interviewee with the information listed in this introductory section, in order, to provide informed consent at an early stage.
3. Send a letter or mail of confirmation using the information from this introductory section as a further basis for informed consent.

Setting the scene

The introduction/opening is in line with suggestions from Saunders *et al* (2007:324):

1. Express that taking part in the interview is highly appreciated, this will provide substantial added value to the research project.
2. Start with introducing that the interview will be taped and go through the 'informed consent letter' if taping is approved. If this is declined, the notes need to be more extensive.
3. Introduce the 'informed consent letter' (adopt the passage regarding taping depending on whether it is agreed or not) and reassure the

interviewee which will make them feel more relaxed according to Healey and Rawlinson (1994).

Introduction of the scope

The interview forms part of a Doctor of Business Administration (DBA) programme at the University of Bradford. The project is sponsored by Global Value Management (GmbH), a corporate finance consultancy, focusing on assisting SMEs in terms of growth and restructuring financing, mergers & acquisitions as well as management buy-ins/buy-outs.

The interviewer is the DBA candidate and the founder and CEO of Global Value Management.

We appreciate that you are participating in this interview as your company is known for … [adopt accordingly].

The aim of the project is to evaluate the effect of Basel II on SME financing in Germany and how SME in your view can cope best with the changes.

A survey was conducted which provided certain insights into the research objective.

We are interested in your views on: the respective financing issues and regarding the findings derived from the survey. We will present these to you in the second part of the interview, to ensure that they do not become confused (and gain unbiased answers).

Interview Schedule: Part 1 SME

1. SME: Personal & Company Background

May I first ask you about your personal background?

If yes, take details of:

Did the participant take part in the survey?

If *yes and all the answers were given regarding company background*, go to section 1.b:

If *no* and *some answers were missing*, take details of *all the missing elements*:

1.a) Company Background

a) In which year was your company founded?

_____

b) In which German state is your head office?

_____

c) Number of employees 2006 – 2008: _____ _____ _____

d) Revenues in mio. euro _____ _____ _____

(2006, 2007, 2008)

e) Regional focus (Region -> which one, nationwide in Germany or international) _____

Comments/Notes:

_____

f) What is the scope of your company?

Comments/Notes:

1.b) Personal Background

a) How did you become a manager/entrepreneur, explain your background?

Comments/Notes:

b) What is important for you being an entrepreneur?

Comments/Notes:

2. SME: General Assessments

a) Can you explain in detail the evaluation process regarding corporate financing?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

b) What is important for you when you think about external financing?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

c) What do you believe are the main reasons for an SME credit being rejected – can you explain in detail?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

d) What do you believe are the main reasons when a non-bank financier makes an investment in an SME?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

e) How will corporate financing change for SMEs?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

f) Please describe the relationship to your bank and bank manager (meetings, calls, behaviour, credit lines changes etc.)?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

g) What about rating?
(Have you been rated, rating development, bank approach)

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

h) How can other SMEs cope best in order to stay sufficiently financed in the future?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

i) What specific advice would you give to other SMEs?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

Interview Schedule: Part 1 Financier

1. Financier: Personal Background

1. May I first ask you about your personal background.

If yes, take details of:

a) Years of being in business

_____

b) How did you become a fund manager, explain your background

Comments/Notes:

_____

_____

c) What is the scope of your company?

Comments/Notes:

_____

_____

2. Financier: Company Background

2.a) Financier: General Company Background

Did the participant take part in the survey?

If *yes and all the answers were given regarding company background*, go to section 2.b:

If *no* and *some answers were missing*, take details of *all the missing elements*:

a) Date of company founding (active in GY) _____

b) Number of employees 2006 – 2008: _____ _____ _____

c) Funds under managements in mio. euro _____ _____ _____
(2006, 2007, 2008)

d) Regional focus (Region -> which one, nationwide in Germany or international) _____

Comments/Notes:

_____

_____

2.b) Financier: General Assessments

Can you explain in detail the evaluation process regarding SME financing?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

_____

_____

What is important for you when you think about financing an SME – can you explain in detail?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

What are the main reasons when you reject financing an SME – can you explain in detail?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

How will corporate financing change for SMEs?
Will the house-bank principle deteriorate?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

How have SMEs to do in order to stay sufficiently financed in the future?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

Basel II (long-term)/subprime (short-term)

Comments/Notes:

_____

_____

What specific advice would you give to SMEs?

What changes are due to long-term issues like Basel II and what are due to short-term (?) issues like the crisis of the financial markets (subprime crisis)?

- either in general or in relation to certain criteria like size, sector, phase, funds etc. -

Basel II (long-term)/subprime (short-term)

Comments/Notes:

_____

_____

Interview Schedule: SME and Financiers Part 2: Feedback on Findings from Quantitative Analysis

I am highly interested in your feedback on the findings of the survey, which was undertaken in the fourth quarter of 2008..

Therefore, I will provide you with the main findings in the respective area – would you please be so kind to comment on that.

2.b) Financier: Investment Focus

a) Preference in sources of financing
- in the last three years
- in the next three years

❑ Credits ❑ Subsidies ❑ Leasing ❑ Factoring

❑ Mezzanine ❑ Securities (ABS) ❑ Equity

Instruments provided	**in the past**	**in the future**
… on average by banks	3.80	3.67
… on average by non-bank financiers	1.56	1.56

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**Financiers**
Basel II regarding sources of finance:	2.45

Please comment on these findings from the questionnaire-based survey:

_____

b) **Preference in phase related focus**
- in the last three years
- in the next three years

❑ No preference ❑ Seed financing ❑ Growth financing ❑ Working Capital

❑ MBO / MBI ❑ Buy-out financing ❑ Turn-around finance ❑ Others _____

Phases supported	in the past	in the future
… on average by banks	2.80	2.60
… on average by non-bank financiers	2.27	2.44

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**Financiers**
Basel II regarding phases supported	2.41

c) **Preference in sector focus**
in the last three years in % / in the next three years in %

- ❑ Plant / Mach. Industry 57% / 48%
- ❑ Automotive: 37% / 28%
- ❑ General Industry 35% / 38%
- ❑ MedTech / BioTech: 38% / 40%
- ❑ ITK, Media, High-Tec. 45% / 42%
- ❑ Chemicals / Pharma 31% / 34%
- ❑ Building/Construct 25% / 18%
- ❑ Food 23% / 20%
- ❑ Consumer Goods 31% / 26%
- ❑ Energy / Water 26% / 26%
- ❑ Retail / Trade 31% / 28%
- ❑ Fin. Serv. Ind. 12% / 11%
- ❑ Logistics / Traffic 29% / 26%
- ❑ Consulting / Services 25% / 22%
- ❑ Agriculture / Mining 11% / 9%
- ❑ no answer 9% / 14%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**Financiers**
Basel II regarding sector choice:	2.44

d) Sweet spot regarding revenues (from … million euros to … million euros)
- in the last three years
- in the next three years

e) Sweet spot regarding EBIT (from … million euros to … million euros)
   - in the last three years
   - in the next three years

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**Financiers**
Basel II regarding company sweetspot	2.31

3. SME & Financier: Influencing Factors and General Effects on SME Financing

According to your opinion, what importance have the following incidents had on the financing of German SMEs?

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**SMEs**	**Financiers**	**Delta**
Basel II:	3.07	3.19	3.9%
subprime crisis:	2.98	3.56	19.5%
problems of investment banks	2.74	3.00	9.5%
problems of state owned SME banks	3.12	3.62	16.0%
… others (please name)			

What role do the following information sources play regarding financing options?

Findings from the questionnaire-based survey:

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**SMEs**	**Financiers**	**Delta**
Banks	3.32	3.44	3.6%
Non-bank financiers	2.16	3.18	47.2%
Chartered accounts	3.07	2.98	-2.9%
Chamber of Commerce	2.09	2.23	6.7%
Trade press/internet	2.61	2.61	0%

Effect of Basel II regarding SME financing

Please comment on the results of the primary study
(Scale of 1 = much easier/cheaper to 4 = much more difficult/expensive)

Due to Basel II …

	SME	Financier	Delta
… SME **credit financing** via banks will be	3.25	3.08	5.5%
… SME financing via **non-bank financiers** will be	2.57	2.28	12.7%

Please comment on these findings from the questionnaire-based survey:

4. SME: Strategy

4.a) Strategic Focus

How do you assess the importance of the following strategic elements in the past (prior to Basel II, i. e. prior to 2007/2008) and in the future (next two years)?

Findings from the questionnaire-based survey:

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Focus on …	**SME past**	**SME future**	**Change**
… financial stability/liquidity	3.25	3.78	+ 16.2%
… increasing profitability	3.37	3.49	+ 3.5%
… enhancing market position	3.08	3.28	+ 6.2%
… quality excellence	3.25	3.32	+ 2.6%
… technology excellence	3.05	3.08	+ 1.1%
… cost excellence	3.34	3.54	+ 6.1%
… increasing company valuation	2.75	3.12	+ 13.6%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	SMEs
Basel II on inv. criteria of non-bank fin.:	2.61

4.b) Potential Areas

How do you assess the current potential of your companies and what would you like to improve in the future?

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Findings from the questionnaire-based survey:

Potential areas	Current potential	Future potential	Change
Profitability (in rel. to sector avg.)	2.67	2.79	+ 4.4%
Financial situation (equity ratio. liqu., in rel. to sector avg.)	2.79	2.86	+ 2.4%
Management	3.02	3.02	+ 0%
Research & Development	2.05	2.46	+ 19.9%
Production & Logistics	2.56	2.77	+ 8.5%
Marketing & Sales	2.79	3.12	+ 11.8%
Controlling & Administration	2.83	2.82	- 0.1%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**SMEs**
Basel II on inv. criteria of non-bank fin.:	2.34

5. SME & Financier: Corporate Financing of SMEs

5.a) SME & Financier: Financing Preferences of SMEs

How do you assess the financing preferences of SMEs in the past (prior to Basel II, i. e. prior to 2007/2008) and in the future?

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Usage of fin. options:	SMEs past	SMEs future	Change	Fin. past	Fin. future	Change
Retained earnings	3.19	3.47	8.8%	3.52	3.77	7.1%
Share holder (equity/loan)	2.53	2.54	0.4%	3.35	3.60	7.5%
Bank credit	3.00	2.95	-1.7%	3.84	3.52	-8.3%
SME subsidies	2.38	2.28	-4.2%	3.16	3.27	3.5%
Supplier credit	2.28	2.26	-0.9%	3.43	3.65	6.4%
Leasing	2.81	2.93	4.3%	3.26	3.44	5.5%
Factoring	1.41	1.59	12.8%	2.60	3.13	20.4%
Mezzanine	1.20	1.43	19.2%	2.32	2.63	13.4%
Securities (ABS)	1.13	1.13	0.0%	1.56	1.52	-2.6%
Private equity	1.29	1.49	15.5%	2.29	2.79	21.8%
Strategic investor	1.36	1.72	26.5%	2.21	2.59	17.2%
IPO (e.g. entry standard)	1.05	1.16	10.5%	1.92	1.84	-4.2%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	SMEs	Financiers	
Basel II on financing preferences:	2.66	3.02	13.5%

5.b) SME & Financier: Rejection Criteria Regarding the Granting of Credits

How do you assess the rejection criteria of bank credits regarding SMEs in the past (prior to Basel II, i. e. prior to 2007/2008) and in the future (next two years)?

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Rejection criteria bank credits:	SMEs past	SMEs future	Change	Fin. past	Fin. future	Change
To SMEs in general	2.24	3.04	35.7%	2.07	2.54	22.7%
Poor sector outlook	2.68	3.47	29.5%	3.21	3.48	8.4%
Poor market position compared to competitors	2.71	3.33	22.9%	3.33	3.63	9.0%
Profitability in the past	3.00	3.47	15.7%	3.12	3.30	5.8%
Financial situation in the past (equity ratio, liquidity, …)	3.12	3.75	20.2%	3.21	3.45	7.5%
Insufficient securities/liabilities	3.32	3.81	14.8%	2.67	2.82	5.6%
Unfavourable outlook (revenues, earnings…)	3.25	3.79	16.6%	3.65	3.82	4.7%
Quality of management team	2.98	3.52	18.1%	3.56	3.77	5.9%
Differences in assess-ment of comp. strategy	2.76	3.11	12.7%	2.98	3.28	10.1%
Personal friction betw. company management and banker	2.80	2.89	3.2%	2.86	2.91	1.7%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	**Financiers**
Basel II on rejection criteria:	2.78

5.c) SME & Financier: Company Specific Financing/Investment Criteria

How do you assess the importance of the following investment criteria regarding your financing/investment decisions in the past (prior to Basel II, i. e. prior to 2007/2008) and in the future (next two years)?

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Inv. criteria of non-bank fin.	SMEs past	SMEs future	Change	Fin. past	Fin. future	Change
Financial stability in the past (equity ratio, liqu.)	2.87	3.32	15.7%	3.29	3.49	6.1%
Good market position	3.19	3.47	8.8%	3.58	3.76	5.0%
Leading edge prod./technology	3.33	3.53	6.0%	3.47	3.63	4.6%
Good comparative cost pos. in rel. to comp.	3.02	3.21	6.3%	3.16	3.34	5.7%
Ambitious mgmt. reg. comp. valuat.	3.17	3.45	8.8%	3.17	3.26	2.8%
Strong financial management	2.96	3.40	14.9%	3.15	3.46	9.8%
Future growth options	3.35	3.47	3.6%	3.68	3.85	4.6%
Willingness of shareholders to inc. new inv. with respective rights	2.36	2.52	6.8%	2.75	3.07	11.6%

Please comment on the results of the primary study (1 = no importance to 4 = very high imp.)

Importance of …	SMEs	Financiers	Delta
Basel II on inv. criteria of non-bank fin.:	2.79	2.58	-7.5%

6. Financial Performance SME

Findings from the questionnaire-based survey:

Please comment on the results of the primary study (1 = lower, 2 = equal, 3 = higher)

		The value in the past was …			The value in the future will probably be …		
	Current value	**lower**	**equal**	**higher**	**lower**	**equal**	**higher**
No. of employees finance department	2.9 Persons	1.94	❑	❑	❑	❑	2.21
No. of phone calls with bank manager per year	14.8 times p. a.	1.96	❑	❑	❑	2.00	❑
No. of meetings with bank manager per year	3.2 times p. a.	1.94	❑	❑	❑	❑	2.08
Rating value	_____ rating	1.77	❑	❑	❑	❑	2.30
EBIT ratio (pre-tax profit/revenue)	6.6 %	1.75	❑	❑	❑	❑	2.29
Equity ratio	37.9 %	1.94	❑	❑	❑	❑	2.38
Height overdraft (in % of revenue)	5.8 %	❑	❑	2.11	1.82	❑	❑
Development of credit rates		❑	❑	2.15	❑	❑	2.27
No. of credit application rejections	____ times	1.83	❑	❑	❑	❑	2.04

7. Closing

Thank you very much for your support and for taking your time to answer these questions.

Can I finally ask you if there are any aspects regarding the Basel II effect on SMEs and investors, relating to your experience as funds manager, that have not yet been covered in this interview?

_____

Close with reference to the informed consent letter, about providing a tape/transcript, and an excerpt of the study.

Appendix F INFORMED CONSENT LETTER

Informed Consent Letter

Note: as informed consent and confidentiality are applied, (and anonymity on request and only in the dissemination phase) the process of confidentiality and voluntary participation is explained extensively in order to gain a real and full consent not only about the research topic but especially concerning the research process as well.

“Thank you for participating in this corporate finance research as part of a DBA project of the University of Bradford:

The aim of the research is to evaluate the ‘effect of Basel II regulation on SME financing in Germany and how SMEs can cope with the effect’. Interviews were conducted to gain a deeper understanding.

Prior to the interviews a survey was conducted by means of self-administered questionnaires amongst SMEs on the one hand and financiers on the other hand.

In order to acknowledge your effort you will get a dedicated evaluation of the findings setting your estimations in relation to the average or respective peer groups.

As it is best practice to ensure that a broader audience benefits from the research findings, it is planned that the general findings - without any individual details - will be published in selected magazines, via a press release and on the internet. Complying with state-of-the-art methodologies no tracing back to the individual companies will be possible.

Before we start with the interview it is important for you to know that the DBA study is sponsored by Global Value Management GmbH (GVM). GVM is a corporate finance consultancy advising SMEs on areas such as corporate financing. The

researcher who conducted the interviews is the founder and Managing Director of that firm. The interviews are for research purposes and not for consulting purposes.

Applying to international standards of ethical best practices in research, the author will apply high standards of confidentiality, for example, by using secured files for the storage of data. A record of the interview for approval will be provided. After your approval, the recording will be destroyed and overwritten after the DBA thesis is completed.

In any cases where citations are to be included in the research publication, fictional names will be used and no specific descriptions will be provided so that no tracing back is possible according to state-of-the-art methodologies.

Furthermore, it is important for you to know that you can leave the interview at anytime, or you can skip certain passages from utilisation within the research. If you wish to do so just say ‘off-the-record’ and I will pause the recording. Or you can say afterwards to skip a passage already recorded. Furthermore, you can even skip or alter passages when you get the recording. Or you can even resign from participating. In that case the interview would not be included in the research at all.

If major changes occur during the research you will be informed immediately and you can change elements of your statements or resign completely as discussed above.”

… conduct the interview …

“Thank you very much for your time and your thoughts. I will send the recording to you via e-mail. The e-mail will be password secured, this will be provided via telephone. Please return your comments via mail using the same password or give me a call so that I can collect the transcript from you.
At the end of the data analysis phase you will get the evaluation discussed upfront.
All the best and have a good day!”

Appendix G SAMPLE SESSION SUMMARY SHEET

Session Summary Sheet (Example: SavingsBank)

The session summary sheets are structured already, according to themes (variables, see section 4).

Nonverbal elements like emotions or posture and links to other sections were added in [brackets] directly into the text.

As an example of a session sheet, the interview with the SavingsBank director was selected because he has decades of experience in SME financing and some elements provide evidence for the alternative hypothesis which finally led to the amended hypotheses described in the synthesis.

Setting

The interview took place on 27 May 2009. It started at 1:05 pm and ended at 2:08 pm (63 minutes without any interruptions).

General Background

Personal Background

The SavingsBank manager started his career at the savings bank, as an apprentice, and has been with the bank for more than 25 years. During his career, at the bank, he moved through several positions and worked in nearly all the bank functions, in the B2C and B2B areas. He looks upon this broad qualification approach favourably and regrets that this broad scope can, nowadays, be lost. In 1996, the savings bank was segmented along business units. He moved into the business clients department which, in the case of the savings bank, primarily focussed on SMEs. He became the director of the biggest region in 2008.

I mentioned that it is not often, anymore, that a senior manager stays at a bank for a lifetime career: he answered that he has stayed with the SavingsBank as it is '*possible to pursue long-term goals and strategies together with the client*'. SME business is down-to-earth which is aligned with his down-to-earth mentality. He stresses the fact that this enabled him to gain in-depth insight into sectors and companies whilst building up trust with the entrepreneurs. This is not possible, in the same way, with other banks: '*in contrast, major banks make a strategy shift every two to three years which does not allow for such long-term strategies*'.

Company Background

SavingsBank is dedicated to SMEs, due to political parameters in terms of saving banks in general, in order '*to take care of the local business*'. His entity comprises of balance sheet assets of some tens of billions of Euros, with a staff of several thousand employees.

SME credits were handed out directly by his team. Regarding alternative means of finance, dedicated managers are allocated within the bank and the funds were provided by the Federal State Bank which is partly owned by the SavingsBank and by the state.

According to his assessment, it will be interesting '*how the Federal State Bank issue will move along*' given the current discussion regarding the losses made by State owned banks due to the subprime crises. The regional scope of the SavingsBank is that it covers a region with more than 10% of the gross domestic product of Germany.

General Assessments

General Assessment on Basel II

Before going into detail, the SavingsBank manager made a general remark regarding Basel II. He acknowledged that Basel II did not only *'have an educational effect'* on SMEs, but on the SavingsBank as well. The rating system became more *'stringent'* due to Basel II. He believes that Basel II is advantageous for 'good' SMEs: *'prior to Basel II the good SMEs subsidised the bad ones'*. As ratings foster a greater spread, there will be a battle to win the high-quality SMEs – for the sake of the margin.

Can you explain in detail the evaluation process regarding SME financing?

He points out that SavingsBank have had valid rating criteria which covers hard (financial) facts as well as soft facts, prior to Basel II – this goes back to the year 2000. With Basel II, this is still the same; however, the instruments became much more refined.

[He came back to this point later in the interview.]

SavingsBank differentiates between a simplified rating for smaller SMEs, or smaller credits, based on the bank account history. However, even this rating value is communicated.

Starting with a certain threshold, the effort of a profound rating is justified. According to his estimate, a higher ratio (than stated to be rated in the quantitative analysis) has been rated by SavingsBank. Regarding rating discussion there are three clusters: the discussion with the 'good rated SMEs' is short ('go ahead like in the past'). The same applies to companies with a low credit volume, even if the rating value is not so good. The last cluster comprises firms (less than 50%) with a high credit volume and an unsatisfactory rating value. Within a comprehensive discussion, issues of improvement are discussed.

[Pause for thought]

Finally, he points out that *'a good rating has to grow'*. This means that a newcomer to SavingsBank will not get a top rating right from the start – trust regarding sustainability has to be built up over time.

Kommentar [BS1]: Evidence regarding hypothesis 2.a.

What are the main reasons when you reject financing an SME – can you explain in detail?

The rejection criteria are the 'classic ones'. The main reasons are related to poor financial status, in relation to an undermanaged firm often resulting in an unsatisfactory company perspective for the future. In short, a company is rejected if it does not comply with the rating criteria.

He argues that the SavingsBank did not substantially change its criteria as a result of Basel II or the financial crisis.

Kommentar [BS2]: Evidence regarding hypothesis 2.a.

How will corporate financing change for SMEs?

In addition to the remarks of 'strengthening the house bank principle' (see next question), he puts his assessment into perspective later on. He pointed out, in the second half of the interview, that it would be an advantage to SavingsBank if a SME included alternative means of finance in order to spread the risk – for the SME and the SavingsBank as well.

Kommentar [BS3]: Evidence regarding hypotheses 2.b and 3.

He makes the reservation regarding strengthening the house bank principle [see below]. He believes that the house bank principle will be strengthened as a core bank principle, meaning

that credits will be primarily provided by a single house bank. Yet, corporate financing will be enhanced by other means of finance in the future. In the past, credits (by one house bank or several house banks) had often been the exclusive source of financing.

Kommentar [BS4]: Evidence regarding alternative hypothesis 1.

He believes that especially private equity will advance in the top-segment – beyond 10 million euros in revenues.

Kommentar [BS5]: Evidence regarding hypotheses 2.b and 3.

Will the house bank principle deteriorate?

According to his assessment, the house bank principle will not deteriorate: *'it will partly even be strengthened'* [as core bank principle, see above].

However, there are cases where a bank wants to spread the risk, this will be discussed.

He believes that SMEs learned that: *'the more information one single bank has, the easier it will be for the bank to assess and support a SME'*. The more a SME tries to shop around, the more difficulties it will face as a result of them obtaining a comprehensive picture, despite the cross banking information.

As a rating discussion takes two to three hours – excluding the preparation – the effort is too high for a SME to look for multiple banks.

According to his opinion, the house bank will be the first point of contact to the SME as SMEs wants to have a single contact. In contrast to the major commercial banks, savings banks are best at providing such a 'single face to the customer'.

Kommentar [BS6]: Evidence regarding alternative hypothesis 1.

He argues that this dedicated contact person is decisive, rather than focused on credit rates which are at the core of the Basel II discussion.

How should SMEs cope best in order to stay sufficiently financed in the future?

First of all, it was important for him to state that there is 'no credit crunch'. The financial situation of a specific SME does not allow for granting credits, referrals to the financial crisis are excuses.

Referring again to the focus on one house bank, in relation to credit financing, he stresses the importance of rating. According to his opinion the 'rating is dependent on the owner' as the critical success factor is to install valid planning. He advises SMEs to incorporate a good chartered accountant into the process as *'only a few SMEs are able to evaluate liquidity demands'*.

He believes that this planning aspect is decisive as the last years have been very good for most SMEs, but in the future, planning will be essential especially due to Basel II. Issues include: order backlog, liquidity plans, etc.

Kommentar [BS7]: Evidence regarding hypothesis 2.a.

Besides a strong '*banking relationship*' to one core bank, he is not against greater openness: *'if SMEs extend their means of corporate financing on a more broad and stable basis, everybody benefits – the SME as well as the house bank'*.

Kommentar [BS8]: Evidence regarding hypotheses 2.b and 3.

What specific advice would you give to SMEs?

Besides the classic elements that SMEs should go for, a sound business model and generate profits, he made some specific remarks about dealing with banks.

He argues that SMEs should adapt to the 'new rules' quickly which demands a change in the 'mind set' regarding the approach of banking negotiation. Whereas, in the past the 'entrepreneurial personality' made the difference in getting a credit, with Basel II controlling and financial reporting are of prime importance. The entrepreneur has to acknowledge that a deep understanding of the company background (strategy etc.) as well as the market environment that the SME is operating in is essential: 'this imposes a learning curve on the

Kommentar [BS9]: Advice to SME.

entrepreneurs'. Regarding good firms, this learning process is quick as these firm *'regard rating / Basel II as a platform to position themselves well'*.

Therefore it is important to provide the bank, continuously, with information to ensure that the annual balance sheet is handed in quickly – this enhances transparency. Prior to Basel II, assessing the current status of the company was often mere guesswork for banks.

Thus, far more data were needed which was time consuming. Yet, adapting 'the game change' will provide SMEs with a competitive edge. This provides a *'good chance to profile one positively. On the other hand the companies who stick to a restrictive information policy run into danger that the banker believes they have to hide something'*.

In addition, he made a special point regarding Basel II and when times are rough for the SMEs. SMEs should provide the bank, timely, with the financial information (monthly preliminary financial balance sheets and P&L statements) as well as forecast information – even if there is bad news regarding the current status and outlook. Otherwise, *'if the information is provided too late it is hard to stop the negative spiral'* because in the case of an account becoming overdrawn, certain mechanisms start to take place within the bank which can hardly be stopped.

Kommentar [BS10]: Evidence regarding hypothesis 2.a.

Kommentar [BS11]: Advice to SME.

Kommentar [BS12]: Advice to SME.

Interview Schedule Financiers Part 2: Feedback on Findings from the Quantitative Analysis

I am highly interested in your feedback on the findings of the survey. I will provide you with the main findings in the respective areas. Would you please be so kind to comment on them?

Investment Focus

He looked at the findings from the quantitative survey which were provided by the author and commented that he believes this is in line with his assessment. He said that there is nothing particular to add, in relation to what he had already stated about the house bank principle and the complementary function of other means of finance beyond loans.

Influencing Factors and General Effects on SME Financing

According to your opinion, what importance have the following incidents had on the financing of German SMEs?

He reflected on the assessment of relevance of Basel II in comparison to the subprime crises. According to his opinion, the subprime-crises is a short-term issue with little effect on SME financing: *'subprime is a bank issue rather than an SME issue'*.

This is in line with the SME view of the quantitative findings.

What role do the following information sources play on financing options?

He referred to the discrepancy between the assessment of SMEs and financiers regarding the role of non-bank financiers as 'source of information'. According to his opinion, only a few SMEs have experience with private equity, but more and more are thinking about it. As private equity for (smaller) SMEs is relatively new these SMEs try to be very well informed, upfront, before making a decision.

Kommentar [BS13]: Evidence regarding hypotheses 2.b and 3.

What is, in general, the effect of Basel II on credit and non-bank financing?

'Prior to Basel II the good companies, financed the good ones.' Therefore, the bad SMEs are lamenting. However, as the findings of Basel II are discussed, the ways of improvement are clearly described.

'Regarding the good SMEs, Basel II is an advantage as they got the rates they deserve.'

SME Strategy

Strategic Focus

How do you assess the importance of the following strategic elements, in the past (prior to Basel II, i. e. prior to 2007 / 2008) and in the future (next two years)?

By looking at the findings from the quantitative analysis he reflected especially on the issue of financial stability. Financial stability is important in order to have a valid rating and to stay sufficiently financed.

Kommentar [BS14]: Advice to SME.

Company valuation is essential as a means of 'retirement provision' for the entrepreneur.

Potential Areas

How do you assess the current potential of your companies and what would you like to improve in the future?

He points out [emphatic] that a major difference between SMEs and major corporations is that within SMEs *'one single failure can set the whole company at risk'*. Whereas, in major corporations a failure in one business line is seldom mission critical as a major corporation can better leverage risk and management capacity.

In line with the findings from the quantitative analysis, he believes that marketing becomes more and more important due to the high technical orientation of the SMEs: it is essential to become more outgoing.

On the other hand, he cannot understand [shaking head in disagreement] why controlling is so low on the SME agenda. SME entrepreneurs obviously do not steer their companies by means of planning – yet, it will be essential that this changes.

He repeats that the classical SME entrepreneur is technological driven [repetition in order to lay focus on it], and he doubts that all chartered accountants provide valid help as these are too focused on collecting data from the past (monthly preliminary financial balance sheets and P&L statements).

Kommentar [BS15]: Advice to SME.

Controlling is regarded as a 'necessary evil'. It is either delegated to the next management level or to a chartered accountant, both of which seem inappropriate to him.

However, he believes that the *'new entrepreneurial generation'* (often the successors of the founder) are more controlling and planning affine than the older ones.

Kommentar [BS16]: Evidence regarding hypothesis 2.a.

Corporate Financing of SMEs

Financing Preferences of SMEs

Regarding the effect of Basel II in terms of corporate financing, the SavingsBank manager compared the introduction of Basel II with the introduction of the Euro. *'With the introduction of the EURO in Germany, people had the feeling that prices increased. Analogues with the*

introduction of Basel II, companies feel that Basel II makes financing for SMEs more costly. It is difficult to knit this down to facts [emotional].'

Therefore he agrees to the findings from the quantitative analysis, the *'inner financing by means of retained earnings'* is a key factor – with the explanation that this fosters 'independency'. The prime motivation of SMEs is to have a high degree of freedom and independency regarding decision taking [emphatic].

In relation to the estimated rise in alternative forms of finance, he argues that there is a 'gut feeling' that with leasing and factoring, the 'hard factors', are not as distinct as credit criteria in times of Basel II. This was true until recently. Now these companies also conduct a more profound balance sheet analysis. On the other hand, this is a fallacy as these applications are often filled in by consultants [condescending], whereas the banking negotiation is carried out by the entrepreneur himself.

The often 'decade long relationship' between the founder and the banker is *'not that easily transferable'* over generations. He refers [emphatic] to one of his team members who has taken care of a SME client for over 20 years.

Kommentar [BS17]: Evidence regarding hypothesis 1.

[Pause for thought.]

He comes back to the successor issue. In the last few years a wave of new managers from inside or outside the family took over control from the 'founding fathers', they set up these businesses (often) in the 1950s and 1960s. These entrepreneurs coped with hard times in setting up a business and growing it, against many obstacles. The new generation has never experienced these 'starting from scratch obstacles'. Therefore, the current recession hits them harder as they – more or less – only knew periods of prosperity.

This provides a learning curve in relation to financing which has been purely *'easy going credit financing for decades'* [voice raised in order to underline].

By reflecting back to his introductory remarks on the house bank principle, he adds that the new entrepreneurial SME manager has opened up for non-credit enhancements (rather than credit alternatives): this is the case especially beyond 10 million Euros in revenue [repetition from above]. Specifically, major SMEs try to *'spread out risks on more than one shoulder'*. In addition, banks engage in stricter 'upper limits' per client due to Basel II, so that some SMEs reach the upper limits of their house bank and therefore have to seek additional funds.

Kommentar [BS18]: Evidence regarding hypothesis 1.

Rejection Criteria Regarding the Granting of Credits

How do you assess the rejection criteria of bank credits regarding SMEs, in the past (prior to Basel II, i. e. prior to 2007 / 2008) and in the future (next two years)?

[Shaking head.]

He is astonished about the fact that SMEs believe it will be more difficult, or more costly, for SMEs in general, or in certain sectors, to get bank credits.

He cannot understand [emotional] how SMEs come to such an assessment. Again [see example: Euro introduction] this is *'more perception than reality'*. Speaking on behalf of the SavingsBank this is definitely not the case: however, certain sectors like the automotive sector are under bigger scrutiny. Yet, there is no blacklisting of certain sectors.

Kommentar [BS19]: Evidence regarding alternative hypothesis 1.

In terms of securities, he believes too that this corresponds with an issue of out-dated beliefs [repetition to stress the point]: *'if a company has a valid standing and rating, securities are not an issue. Otherwise if a company has great securities but the profitability of the SME is not given, no credit will be granted'*. But, it is still a common bias: *'if I have securities I will get a credit. This is wrong. Decisive is the standing and potential of the SME'*.

Therefore he strongly agrees that the outlook to the future is decisive.

[Pause to think.]

Reflecting on the major differences in assessment between SMEs and financiers, he states that it will take years to get a better alignment: *'it is difficult to transfer to SMEs how rating is functioning as it is not the day to day business of SMEs'*. It is the duty of the banks to undertake more effort to explain the mechanism.

Kommentar [BS20]: Evidence regarding hypothesis 2.a.

Company Specific Financing / Investment Criteria

How do you assess the importance of the following investment criteria regarding your financing / investment decisions, in the past (prior to Basel II, i. e. prior to 2007/2008) and in the future (next two years)?

He agrees from a banker point of view that market position is critical. Due to the more and more competitive world, a shakeout will take place and only the companies who have a valid market position will survive.

He believes that, especially, private equity companies take an even closer look on 'where to invest'. A sound financial setting provides the basis. Otherwise a future oriented concept has no valid starting point.

However, he wonders [emotional] why growth as a means to itself is so important: 'why is it important to take more and more risk in order to grow'. He wonders why no rethinking takes place: *'the issue of sustainability is not yet rooted'*.

Financial Performance SME

What is the financial performance of your company?

He has, especially, a differentiated view on the development of credit rates.

He believes: *'the differentiation of credit rates will be substantial which will not lead to increased margins at the end'*. The good SMEs know how good they are and that banks are interested in staying or becoming the house bank. Therefore the banks will experience little margins.

Regarding the 'bad SMEs' you can achieve higher margins, but the real question is whether the company will survive the next few years.

In total, the top will broaden with lower margins but the basis below will not be stable enough to bolster the portion of credits which will be lost.

Closing

Can I finally ask you if there are any aspects regarding the Basel II effect on SMEs and investors, relating to your experience as funds manager, that have not yet been covered in this interview?

He said that there was nothing left out regarding the specific questions but he wanted to stress again the issue of sustainability [emotional]: *'the sustainability issue is not yet covered well in the financial industry. The financial industry should focus on SMEs with a sustainable business and a profound basis'*.

That means: *'sustainable growth rather than uncontrolled growth. And, sustainable growing companies are at the end the most successful ones'*.

Kommentar [BS21]: Advice to SMEs